The Chemical Age

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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Rapid Dyestuff Developments

EVENTS are moving with unusual rapidity in the British dyestuffs industry. Exactly where they may ultimately land us is not yet quite clear, but already there are indications of a definite line of policy, some hints of which have been offered in these columns from time to time. The initiative has come from the British Dyestuffs Corporation under the new management, which has already demonstrated its vigorous character. First of all, there was the financial reconstruction, involving the elimination of Government control, and latterly the Board has been distinctly strengthened by the inclusion of men whose technical and commercial qualifications are beyond dispute.

Now comes the announcement that an agreement or alliance has been arranged between the B.D.C. and Scottish Dyes, Ltd. Readers who have followed our comments on the situation from time to time may not be entirely unprepared for some such development. The fusion is an important one, both from the scientific and the commercial points of view. The friendship that has marked the relations of the two companies in the past will now be converted into active co-operation, and the combined organisation is strong in all the essential qualifications. The understanding reached will avoid any overlapping for the future in research or production, and the considerable resources of the joint concern will be utilised in the most economical and effective way.

Of the two companies perhaps the B.D.C. is the greater gainer by the agreement. Scottish Dyes, Ltd., has attained a real distinction for its success in the study and production of vat dyes, and Dr. E. F. Armstrong, a chemist in all his instincts and associations, will probably consider it very good business to have linked up the research resources of Scottish Dyes, Ltd., with those he himself commands. Moreover, the agreement will eliminate competition in particular ranges of colours, and, by more intensive concentration of manufacture, production costs should be favourably affected and sales to some extent helped. The Corporation benefits in yet another respect—it secures as a member of its board Mr. James Morton, who has latterly shown as great a capacity in the production of dyes as he had previously shown in the production of beautiful fabrics. Although the B.D.C. has acquired a controlling financial interest, Scottish Dyes, Ltd., will continue to be managed as a separate company, with Mr. James Morton as chairman and Dr. John Thomas as managing director. Sir William Pope, too, who has acted for some time as technical adviser to Scottish Dyes, Ltd., and whose judgment on purely commercial matters is not quite negligible, joins the board as a director. The production of vat colours is in future to be exclusively transferred to Scottish Dyes, Ltd., whose success in the production of their Caledon and Soledon colours has given them a world-wide reputation in this field.

The interesting point from the public side is whether this fusion is to represent a beginning or an end. The two companies together would admittedly constitute a very strong team. Would they be further strengthened by the inclusion of other units or will they continue to stand alone in the belief that they are self-sufficient? There is no answer to such questions at the moment, but it seems almost inevitable that sectional combination should be met by sectional organisation, and one may foresee the possibility of other independent firms also forming some sort of combine among themselves. If two main groups should be the result, it would be in accord with modern tendencies for the two presently to become one, and looking some distance ahead the present divergencies may be preparing the way for an ultimate complete merger.

As we go to press the air is buzzing with inquiries respecting the presence in London of representatives of the I.G. Farbenindustrie. We believe that the gentlemen are really here this time, staying at a comfortable hotel in the neighbourhood of Kingsway, but their movements are enshrouded in mystery, and inquiry into them is certainly not welcomed. Their business is kept, as far as possible, a strict secret. It may

relate to the floating of the suggested German dyestuffs loan of £7,000,000, or to a revival of the old proposal for a working agreement between German and British dyestuff interests. Without ruling out the former, we are inclined to think that the latter may be the more likely immediate object.

A New Bergius Patent

THAT Dr. Bergius is still actively pursuing the principles that have been so widely associated with his name in connection with the conversion of coal into liquid products by hydrogenation is indicated by the publication of another patent specification, which suggests a certain amount of elaboration of the process as it is generally understood. Before referring to this latest specification, which really relates to an auxiliary process, it is, however, interesting to turn back to the original patent, where it will be found stated that under the treatment specified " the hydrogen reacts directly with the coal which is transformed without destructive distillation and *substantially without the formation of uncondensable gases* into valuable hydrocarbons which are either liquid at ordinary temperatures and pressures or which have a low melting point." The italics are our own, and we have inserted them for the reason that they assist in emphasising the impression left by the specification that practically no permanent gases result from the process. It would seem, however, that later work has shown this to be not exactly the case, for in his latest specification (E.P. 244,730) Dr. Bergius actually outlines a method for recovering the waste gases obtained from the hydrogenation of coal, and states that these consist of methane and a certain amount of hydrogen.

It would appear, too, that the volume of methane so resulting is sufficiently large to warrant the introduction of means for precluding its loss, for Dr. Bergius describes an ingenious cycle of operations for dealing with it which involves the utilisation of a comparatively elaborate sequence of apparatus. Described quite briefly, the new process consists in collecting the methane from the hydrogenation chamber, after which it is passed through a condenser, a liquid separator, and then through absorption vessels for removing benzene and sulphuretted hydrogen. The purified methane is afterwards treated at high temperatures with steam in vessels very much resembling the chequer-filled superheaters of a water gas plant, whereby the methane is converted into hydrogen and carbon monoxide. The last-named mixture then travels to a catalyst chamber (oxide of iron being the catalyst employed), in which the carbon monoxide is, by the introduction of a further quantity of steam, converted to carbon dioxide and hydrogen. The carbon dioxide is removed by absorption in water, thus leaving the hydrogen, more or less in the pure state, to be passed back to the original hydrogenation chamber. From the above description it will be observed that no necessarily new chemical reactions are involved; but the cycle of operations, applied as these are to what Dr. Bergius himself describes as a waste product, illustrates that seemingly unnecessary complications of plant are by no means recognised as practical obstacles in the efforts nowadays to make theory and practice more nearly approach each other.

Some Useful Speeches

WE have at times listened to speeches immediately succeeding a too heavy meal that were not all they might have been either in substance or in happiness of expression, but occasionally such gatherings illustrate how pleasant and useful after-dinner speaking may be, when it is done in the right way. Two such occasions may be noted this week. The first was the annual dinner of the London Section of the British Association of Chemists, at which some useful opinions were expressed on the need of protecting the economic interests of working chemists, on the important subject of registration, and on the general need of organising the whole chemical community into an effective unity. Mr. Garland, the president, who occasionally gives a good lead in chemical statesmanship, offered some useful advice on the simplification of organisation with the object of reducing the total cost to chemists in the shape of subscriptions, of bringing all the sections into a closer co-operative relation, and of so organising chemical opinion as to make it bear with greater effect on Government and departmental action and secure greater public recognition and influence. All these things take time, but opinion seems to be shaping itself into constructive form, and gradually hopes will turn into realities.

The second occasion worth noting was the annual dinner of the Oil and Colour Chemists' Association—a function at which some excellent speaking was combined with an entirely bright and agreeable social gathering. Sir Frank Baines set just the right note in proposing the toast of the Association, succeeding in raising some points of fundamental interest to the industry—and especially to the science of the industry—without for a moment dropping the light-hearted spirit proper to the occasion. He spoke of several instances in which his custody of historic national paintings and ceilings, such as those at Greenwich and in the Chapter House at Westminster, became a real anxiety, for the reason that effects are constantly appearing the causes of which are still undetermined. What, for example, is the cause of " flaking " ? Why do the original colours fade ? What is the key to the mystery of " bloom " ? These and many other points he put playfully to Dr. H. H. Morgan, and the President, recognising in them problems of first-rate importance, had one more opportunity of pointing to the root cause—the lack of scientific knowledge of the basic materials of the oil and colour industry, and the imperative need of a combined and concentrated effort to solve them. Dr. Morgan's view that this can be done in time was confirmed by Mr. Tizard, who, however, offered a needful warning against expecting a crop of results to appear immediately. And then we had Mr. Woolcock endorsing each of these three excellent pieces of advice and adding that they would be much more than three times as valuable if they were all combined. Dr. Morgan may be honestly congratulated on the steady growth of the Association under his presidency. The establishment of a successful research association for the industry will be a singularly appropriate memento of his two years of office, and Sir Frank Baines's tribute to his work for the science of the industry, though warm and generous, was not in excess of the truth.

A General Chemical Council

SLOWLY and quietly opinion seems to be moving in favour of a definite scheme for establishing a register of professional chemists. In a statement issued to the members of the Manchester and Liverpool Sections of the Institute of Chemistry it is suggested that the Institute might take the initiative in setting up a registration committee, to be composed of representatives of the Institute, the Chemical Society, the Society of Chemical Industry, the British Association of Chemists, the Society of Public Analysts, the National Union of Scientific Workers, universities, technical colleges and schools, and allied organisations such as the Oil and Colour Chemists, Leather Trade Chemists, and Dyers and Colourists. The first step contemplated is the formation of a General Chemical Council, whose sole function will be the establishment of a Register of Professional Chemists. The Council will be authorised to inquire into the number and the qualifications of those engaged in any capacity in the profession of chemistry, and will draw up a statement of the minimum qualification (which will take account of practical experience as well as of academical diplomas or degrees) for admission to the register. It usually takes a long time to overcome the inherent conservatism of the scientific mind, and the reformers are wise in starting early.

Bureau of Mines and Methanol Research

IT was only some few weeks ago that we commented on the apparent failure of the German methanol invasion of America, and suggested some possible reasons that might account for this rather unexpected state of affairs. In some quarters it was considered that the early reports as to the low cost of production of the synthetic product were too optimistic, and that the Badische undertaking was meeting with technical and economic difficulties not appreciated in the first stages of development.

As supplementing our own information, some interesting views have lately been put forward in our American contemporary *Industrial and Engineering Chemistry*, which, in dealing with the rather obscure question of production costs, remarks that it is most unlikely that the German manufacturers have discovered that the synthetic product is more expensive than they realised, for they have been investigating the possibilities for years and have built and operated more than one plant. Furthermore, with increased production, costs should go even lower. Methanol has a large use as a methylating reagent in dye manufacture. Perhaps, therefore, it has been concluded that it is wiser to make a larger profit on the finished articles, for the manufacture of which methanol is a raw material, than to take a profit on methanol itself. Some economic advantage, possibly in an unexpected quarter, may account for the falling off of methanol imports to America, and it may be that the tariff situation is the deciding factor. If a special effort is made to revise the methanol tariff upward, it is possible that other tariffs might go with it and at least introduce a decided uncertainty into the chemical tariff situation. The I.G. may consider these uncertainties too great to wish to have them enter into the present established business and may, therefore, be willing to sacrifice the methanol business for the larger stake. Maybe production is being curtailed in order to adjust prices to avoid charges of dumping in America. The final possibility, namely, a working arrangement with American producers of methanol, seems least likely.

The methanol question, therefore, continues to be of vital interest. The Bureau of Mines has announced a programme of work which may place America in the same favourable position as regards synthetic methanol as has research and development on the fixation of nitrogen. Research is also proceeding under private auspices, and the American wood products industry is being submitted to rigorous overhauling with a view to determining its ability to compete with the newer sources.

The Calendar

Mar.		
8	Institute of Metals (Scottish Section): Annual General Meeting. "Nickel and its Alloys." W. R. Barclay. 7.30 p.m.	39, Elmbank Crescent, Glasgow.
8	Institute of Chemistry (Manchester Section): "The Endocrine Glands." Dr. Meredith Young.	Manchester.
8	Birmingham University Chemical Society: "The Sugar Beet Industry." F. T. Purkes.	Birmingham.
8	Ceramic Society: "The Scientific Treatment of Boiler Feed Water, introducing the Colloidal Aspect." W. B. Lewis, and G. S. Irving. "Defects in Slip Banded Ware." W. Emery. 7.30 p.m.	Central School of Science and Technology, Stoke-on-Trent.
9	Institution of Petroleum Technologists: "The Search for Oil in Australia." Dr. A. Wade. 5.30 p.m.	Aldine House, Bedford Street, Strand, London.
10	Institution of Chemical Engineers: "Refrigeration." H. M. Dunkerley and W. C. Statham.	London.
10 and 11	Institute of Metals: Annual Meeting. 10 a.m.	Institution of Mechanical Engineers, Storey's Gate, London.
10	Royal Society of Arts: "The Microstructure of Coal." Dr. Reinhardt Thiessen, of the Bureau of Mines (U.S. Dept. of the Interior). 8 p.m.	John Street, Adelphi, London.
11	Oil and Colour Chemists' Association: "Problems in the Painting of Ships." R. G. Browning. "Notes on the Flash Points of Paints and Varnishes." J. Cruickshank Smith and F. B. Crow.	8, St. Martin's Place, Trafalgar Square, London, W.C.2.
11	Optical Society: Ordinary Meeting. 7.30 p.m.	Imperial College of Science and Technology, South Kensington.
11	Society of Dyers and Colourists (Bradford Junior Branch): "Some Notes on the Dyeing of Artificial Silk." P. E. King.	Bradford.
11	Society of Chemical Industry and Institute of Chemistry (Bristol Sections). Joint meeting with the Chemical Engineering Group: "Sifting Plant." 7.30 p.m.	Chemical Dept., University, Bristol.
12	West Cumberland Society of Chemists and Engineers: "Alloys." G. B. Salkeld. 7 p.m.	Workington.
12	West of Scotland Iron and Steel Institute: "Corrosion." James Mitchell.	Royal Technical College, Glasgow.
12	Institute of Metals (Swansea Section): Discussion on "Annealing." 7.15 p.m.	University College, Singleton Park, Swansea.
12	Society of Chemical Industry and Institute of Chemistry: "Some Notes on Pure Chemicals." E. A. Tyler.	Technical College, Mount Pleasant, Swansea.

B.A.C. and the Future Status of Chemists

A Plea for a Simplified Organisation

THE fifth annual dinner of the London Section of the British Association of Chemists was held at the Engineers' Club on Saturday evening, February 27. Mr. C. S. Garland, president of the Association, occupied the chair, and others present included Mrs. Garland, Mr. E. Richards Bolton (president of the Society of Public Analysts), Dr. J. P. Longstaff (general secretary of the Society of Chemical Industry) and Mrs. Longstaff, Mr. Richard B. Pilcher (registrar of the Institute of Chemistry), Professor J. W. Hinchley, Dr. T. Haas, Mr. H. T. F. Rhodes, Mr. S. R. Price, Miss W. Wright, Dr. Geoffrey Martin, Mr. and Mrs. E. R. Redgrove, Mr. and Mrs. H. M. Morgan, Mr. W. H. Woodcock (hon. treasurer of the association), Mr. Bristowe P. Harrison, Mr. and Mrs. A. Kagan, Mr. C. B. Woodley, Mr. and Mrs. A. W. Long, Mr. and Mrs. and Miss W. S. Lloyd-Willey, Miss Hilton Young, Mr. and Mrs. J. C. Mellersh, Mr. J. H. Billson, Mr. F. Bridge, Mr. and Mrs. Gatehouse, etc.

Work of the London Section

In proposing the toast of "The London Section," Mr. H. T. F. RHODES, general secretary of the Association, said that since London was the administrative centre it was not irrelevant to allude to the activities of the whole Association. The Association had advanced because it was always ready to listen to its critics, and in particular had not ignored the criticism and teaching of tradition. That they had not ignored tradition was confirmed by the fact that it was their singular privilege to welcome as guests, Mr. Bolton, Dr. Longstaff, and Mr. Pilcher. He wished, in discussing the activities of the Association, not to deal with the phenomena of visible appearance, but to consider rather the idea which originally gave birth to their activities. At a time when the war was at its height, when the whole of Europe was groaning together, the British Association of Chemists was born. In war, whether in the competitive war of industry or in that of the more literal kind, men had to learn that the crasser form of individualism must be tempered with the realisation that the whole was always, in some sense, greater than its part. That was the spirit which animated the Association in its activities, and was that which would keep it alive. As with the British Medical Association so with the B.A.C. That which made possible the formation of the B.M.A. had been first and foremost a spirit of *esprit de corps*. Improved status, economic and social, had automatically followed, but had it not been a real desire for solidarity for its own sake which had animated those who first formed the British Medical Association, it could not have survived the difficulties and dangers of its youth. The London Section was the first and most enthusiastic advocate of a scheme of registration, and a desire for this he believed to be traceable to the same cause—a desire for real solidarity within the profession.

Mr. S. R. PRICE, Chairman of the Council and of the London Section, emphasised the harmonious working of the Association with other organisations. It was the aim of the Association to educate the public in an appreciation of the work of the chemist, and to make it evident that the work of the chemist, though differing from that of the doctor, was no less vital to the community's welfare. He would like to pay a tribute to the immense amount of work done by the London Committee in the Association's interest.

The Institute and Registration

Mr. E. R. REDGROVE, in proposing "The Ladies and Guests," alluded to the question of the title chemist. He had no doubt that it would ultimately become chemologist. (Laughter.) It was to him as to every other member of the London Section a great pleasure to welcome the guests and in particular Mr. Bolton, Dr. Longstaff, and Mr. Pilcher.

Mr. R. B. PILCHER (whose name, with that of Miss Wright, was coupled with the toast) alluded in his reply to the question of organisation and registration. He wished to make his opinion clear that if there was to be a register, there could only be one registering body and that was the Institute, which was shortly to celebrate its jubilee. (Hear, hear.) To-day it included nearly 5,000 members, and there were not more than 3,000 or 4,000 outside the Institute who could properly be called chemists. Attention was being given in several quarters to the question whether some way could not be found of roping all in under one organisation. The Institute had watched the work of the B.A.C. with interest, and had noted with pleasure what it had been able to do through its Unemployment Fund. (Applause.)

Mr. J. B. P. HARRISON, in proposing the toast of "The President," emphasised the important work that Mr. Garland had done on behalf of the Association. He had always taken a prominent part in its work, and as president he was no mere figure-head, but continued to do everything in his power to increase the Association's influence. It was due to his efforts that an invitation had been extended to the Association to take part in the conference of chemists to be held in July. (Applause.)

Simplification of Organisation

The PRESIDENT, in responding, said that he agreed at once with Mr. Pilcher that the Institute must be the registration body for all chemists. As he saw the situation, it was essential that there should be some simplification of the organisation of chemists in this country, and it seemed to him that they might have three bodies to whom chemists could look for help and to whom their subscriptions could be paid, for the pressure of subscriptions to the numerous existing bodies was a very serious matter to the young chemist. Those three bodies must include first a professional body, which already existed in the Institute, secondly an educational body to which all chemists could belong and which would be able to speak with one voice for the interests of chemists and chemistry, and thirdly some body that could safeguard the economic interests of chemists, and that was where the B.A.C. came in. The American Chemical Society was able to speak for about 17,000 chemists, with the result that any representations made to Washington were respectfully listened to, whereas here at present there was no means of voicing the united interests of chemists. What they had to do was to pull all together in making the profession a vital influence in the life of the country. Professor H. E. Armstrong—he had nearly called him "High Explosive Armstrong" (laughter)—described chemists the other day as a "disunited rabble." If they looked around, he was not sure whether there might not be a glimmer of truth in that. The Professor suggested that chemists fought like cats; well, he was perhaps one who should know. (Laughter.) But whatever might be said of Professor Armstrong's criticism, chemists certainly did need to pull together and to take more interest in public affairs. He fully appreciated the work of Quinan, but it seemed a sad reflection on our organisation that when some important large scale technical work was required to be done during the war, we had to go to South Africa and bring back an American to do it. He thought that this country in its chemistry and its chemical engineering should be independent of American, German, Dutch, or any other foreign sources. Referring to the Unemployment Benefit Fund, he said that this had done a great work in improving the chemist's status, and if the Association had done nothing else, that work alone entitled it to the gratitude of all working chemists. (Applause.)

During the evening songs and other items were contributed by Miss Oliver, Mrs. Redgrove and Messrs. S. R. Price, E. R. Redgrove, S. E. Cherrill, and Mr. J. P. B. Harrison. Mrs. Morgan acted as accompanist.

B.D.H. Soil Testing Outfit

WE have received a specimen of the B.D.H. Soil Testing Outfit, price 4s. 6d., manufactured by British Drug Houses, Ltd. It offers a simple means of finding whether a soil is acid, neutral, or alkaline, and hence whether it requires liming. The outfit comprises a spatula for handling soils, a porcelain boat in which the soil is treated with a liquid called the B.D.H. soil indicator, and a dropping bottle containing the latter. The colour assumed by the liquid indicates the "reaction" of the soil, and also gives some idea as to the amount of lime, if any, required. The outfit is intended for all interested in agriculture, being designed for field use.

Institute of Chemistry

Officers for the Year

THE annual general meeting of the Institute of Chemistry was held at 30, Russell Square, London, on Monday, Professor G. G. Henderson (President) in the chair. The Meldola Medal was presented to Dr. Henry Phillips.

In moving the adoption of the annual report which showed that the roll of the Institute now numbers nearly 5,000 Fellows and Associates, the PRESIDENT referred to the decrease in unemployment in the profession, and mentioned that there were indications that not only those industries that were strictly chemical in character but many others were finding that well trained research and analytical chemists were necessary to combat the effects of industrial depression. To some extent, the situation had been relieved by members passing into other work, and also owing to the fact that the output of chemists from the universities had been less during the last two or three years. The Council, however, were seeking further means to encourage the increased employment of chemists for the benefit of industry and commerce generally.

Reviewing the work of the various committees during the year the PRESIDENT showed that the standard of qualification and examinations required for membership was well maintained; the regulations for admission were constantly under review in order to meet the demands of an ever-growing science and the ever-changing conditions of its application. The Committee had been concerned with matters affecting fertilisers and feeding stuffs, in which valuable assistance had been rendered to the Ministry of Agriculture and Fisheries; with the Royal Commission on National Health Insurance, on which the Council had represented the views of public analysts who were responsible for the examination of drugs under the Sale of Food and Drugs Acts; with the Labour Party on the subject of Government scientific publications; and with the Director of Public Prosecutions, to whom the Council were indebted for valuable advice on the question of fees allowed to professional chemists in forensic matters.

The local sections of the Institute had become increasingly active, and the character of the papers read and the discussions held emphasised the ever-growing enthusiasm for the welfare and advancement of the profession. There was talk of seeking statutory powers of registration for professional consulting and analytical chemists, and that matter was under the consideration of the Council because the Institute was the recognised and duly authorised body to carry out any such registration. It was its business to provide a hall-mark for those who might rightly be considered as competent, and to maintain a register of such, and these duties were carried out by the Council with every regard to the grave responsibility which was entrusted to them.

Election of Officers

The annual accounts were passed, and the officers and Council for the ensuing year were elected, as follows:—

President: Professor G. G. Henderson, D.Sc., F.R.S.

Vice-Presidents: Professor E. C. C. Baly, Mr. E. R. Bolton, Mr. A. Chaston Chapman, Dr. Harold G. Colman, Dr. T. Slater Price, and Mr. E. W. Voelcker.

Hon. Treasurer: Mr. Patrick H. Kirkaldy.

General Members of Council: Mr. F. W. F. Arnaud, Mr. H. C. L. Bloxam, Mr. Arthur J. Chapman, Dr. G. C. Clayton, M.P., Professor J. W. Cobb, Dr. W. M. Cumming, Professor J. C. Drummond, Dr. Bernard Dyer, Mr. A. Vincent Elsden, Mr. A. G. Francis, Professor Thomas Gray, Dr. R. H. Greaves, Professor I. M. Heilbron, Mr. Edward Hinks, Mr. A. W. Knapp, Professor W. H. Lewis, Mr. Thomas Macara, Mr. B. G. McLellan, Dr. R. S. Morrell, Professor F. L. Pyman, Mr. L. G. Radcliffe, Dr. Eric K. Rideal, Mr. William Rintoul, Mr. F. Scholefield, Dr. Arthur Slator, Professor J. F. Thorpe, and Dr. J. F. Tocher.

The following district members of council take office as from March 1, 1926:—Birmingham and Midlands, Mr. C. A. F. Hastilow; Bristol and South-Western Counties, Mr. Frank Southerden; Liverpool and North-West Coast, Mr. H. J. Evans; London and South-Eastern Counties, Mr. E. M. Hawkins; Manchester and District, Mr. S. E. Melling; North-East Coast and Yorkshire, Dr. L. G. Paul; Edinburgh and East of Scotland, Dr. Leonard Dobbin; Glasgow and West of Scotland, Mr. W. H. Coleman; Wales and the County of Monmouthshire, Mr. C. A. Seyler; Northern Ireland, Mr. J. H. Totton; Irish Free State, Dr. W. R. Fearon; The Overseas Dominions, The Empire of India, and Abroad, Dr. Frankland Dent.

Naphthalene as Motor Fuel

To the Editor of THE CHEMICAL AGE.

SIR, — With reference to your correspondent's article on "Naphthalene as a Motor Fuel," I should like to add that several American firms had on the market tablets which increased the power of the car and also saved the fuel by 50 per cent. I had the pleasure of analysing a few of these tablets, and in each case found them to contain 5 grains of flaked naphthalene. One of these tablets added to one gallon of petrol worked wonders, and also prevented knocking. As your correspondent says, carburetter adjustment is necessary, and if anyone is interested in the subject, I will give the necessary rules for adjustment:—

For carburetters having one petrol adjustment, reduce flow of petrol from 1 to ½.

For carburetters having needle valve and air adjustments, screw down needle valve or carburetter until engine slackens speed and power. Then give more air until speed and power return. In the case of high and low adjustments, reduce both down until the car runs smoothly.

For carburetters having stationary spray nozzles, plug up nozzle with solder and bore hole about four times smaller and regulate by giving more air. If the engine is heavily carbonised and the plugs foul, the first effect will be sluggishness of the engine and a tendency to spit; then reduce your petrol supply and feed more air and accelerate; this will put matters right.

If these adjustments are made to the carburetter and the proper amount of naphthalene — *i.e.*, 5 grains to 1 gallon— is used, there will be no danger of the naphthalene crystallising.

Yours, etc.,

Plaistow, March 1. HUGH G. CORR.

Cane Sugar Refining

To the Editor of THE CHEMICAL AGE.

SIR,—Your otherwise excellent report of my lecture on "Cane Sugar Refining" contains one error which I should like to have corrected.

The British Government grant an enormous subsidy to home-grown beet sugar, but it is only half that stated in your report. For each £100 worth of duty paid sugar produced, subsidies and rebates amounting to about £100 are given—not £200. Even on this scale the cost to the taxpayer would be £40,000,000 a year if all the sugar consumed here was produced from home-grown beet.

Napoleon gave the manager of the first beet sugar factory the Cross of the Legion of Honour and all his men a week's pay. Since then Governments the world over have vied with one another in giving bounties to beet sugar, but the British Government have surely set up a world's record in subsidies. It is interesting to note that, despite all these bounties, the production of cane sugar last year was 16,000,000 tons, as against 8,000,000 from beet.—Yours, etc.,

Liverpool, February 28. ALEX. C. CUMMING.

Dyestuffs Licences for February

THE following statement relating to applications for licences under the Dyestuffs (Import Regulation) Act, 1920, made during February, has been furnished to the Board of Trade by the Dyestuffs Advisory Licensing Committee. The total number of applications received during the month was 549, of which 476 were from merchants or importers. To these should be added 18 cases outstanding on January 30, making a total for the month of 567. These were dealt with as follows:—Granted, 475 (of which 458 were dealt with within seven days of receipt); referred to British makers of similar products, 65 (of which 54 were dealt with within seven days of receipt); referred to Reparation supplies available, 7 (all dealt with within two days of receipt); outstanding on February 27, 1926, 20. Of the total of 567 applications received 519 or 92 per cent. were dealt with within seven days of receipt.

The Chlorination of Wool

Problems of Shrinkage

THE fifth meeting of the Society of Chemical Industry, Nottingham Section, was held jointly with the Society of Dyers and Colourists on Wednesday, February 24, when a paper was read on "Further Experiments on the Chlorination of Wool" by S. R. Trotman and E. R. Trotman.

In rendering wool unshrinkable, it was stated, both felting and shrinking must be considered. Experiments indicated that while felting was due to the epithelial scales, shrinkage was a property of the cortex. There appeared to be no relation between shrinkage and destruction of epithelial scales, although felting power decreased with increasing damage. This statement was based upon the analysis of several hundred commercial and experimental samples. It was shown that even when 85 per cent. of the epithelial scales had been destroyed the fabric shrank on milling. In fact, it seemed to be impossible to produce absolute unshrinkability by means of chlorine alone. The affinity of wool for dyestuffs depended upon the method of chlorination used. When wool was chlorinated with hypochlorous acid it had a somewhat decreased affinity, but dyed quite evenly. When wool was chlorinated in the ordinary manner it acquired a distinctly increased affinity for dyestuffs depending upon the degree of chlorination; but still, contrary to the general belief, it could be dyed evenly if due allowance be made for the greater readiness with which the damaged fibres took up water.

When wool was treated with a solution containing chlorine there was an immediate rapid disappearance of the chlorine, which was followed by a more gradual absorption. When free chlorine was present the initial absorption was so rapid that the process became uncontrollable and damage was produced very quickly. Solutions of bleaching powder or sodium hypochlorite when used with hydrochloric acid always acted in this manner. Marked damage was produced by the absorption of as little as 1 per cent. chlorine. When hypochlorous acid substantially free from chlorine was used the initial rate of absorption became comparatively slow and the curve more uniform. Hence the process became capable of being controlled.

Hypochlorous Acid Treatment

It was found also that when hypochlorous acid was used neither marked damage nor loss of weight were produced until over 4 per cent. of chlorine on the weight of wool had been absorbed. These facts rendered hypochlorous acid particularly suitable for use in the chlorinating process. It was possible to produce unshrinkability to "normal" washing with comparatively small percentages of available chlorine as hypochlorous acid, which, if used in the form of hypochlorite and acid, would cause extensive damage and considerable loss of weight. This point was illustrated by examples.

The rate of adsorption of chlorine was very rapid, whilst the amount of combined chlorine increased very slowly. Further, chlorine as hypochlorous acid was adsorbed faster than free chlorine; but in the latter case the rate of adsorption was increased by the presence of acids and was approximately proportional to the P_H value. It was concluded that the action of hypochlorous acid on wool differed fundamentally from that of chlorine.

It appeared possible that hypochlorous acid might act by breaking down into hydrochloric acid and oxygen and that unshrinkability might be produced by other direct oxidising agents. Experiments with ozonised air, persulphates, permanganates, hydrogen peroxide, and chloramine T showed that direct oxidising agents affected the felting property of the wool but did not materially alter the shrinking. It was suggested that possibly some kind of addition compound of the chlorhydrin type might be formed by the action of the hypochlorous acid upon the CO groups or double bonds.

A good discussion followed.

Dissolved Oxygen in Effluents

Dr. E. R. Trotman then read a short note on "The Estimation of Dissolved Oxygen in Effluents," in which an apparatus was described with the aid of which it was possible to carry out the entire operation in the absence of air. It consisted of a fairly wide-mouthed bottle of about 250 cc. capacity supplied with a rubber bung through which a tap funnel and a side tube supplied with a glass tap were inserted. A graduation mark was placed on the neck of the bottle so that there should be a capacity of about 10 cc. between it and the bottom of the bung. Before the water to be analysed was entered about 15 cc. of petroleum ether was run in. The water was then added and the usual reagents run in through the tap funnel, the tap in the side tube being opened to allow the petroleum to escape. When the operation was over the iodine liberated was estimated in the usual manner with thiosulphate solution.

Modern Grinding Machines

Professor Hinchley's Criticism

DR. H. HOULSTON MORGAN, president of the Oil and Colour Chemists' Association, took the chair on Monday, at a joint meeting of the Oil and Colour Chemists' Association and the London Section of the Society of Chemical Industry, when a discussion on methods of grinding took place.

The discussion was opened by Professor J. W. HINCHLEY, who said that, owing to competition, manufacturers were in the habit of turning out machines with pulleys too small, frames too small and narrow, journals not true, and so on, and, where the necessary skilled supervision was available, he warned clients to take every new grinding mill to pieces when received. Machines would generally work very much better for such attention. Unfortunately, there were too few firms concentrating on turning out the best class of machines, and even they did not co-operate sufficiently with users to achieve the best results. It was not uncommon even to find the spindles were not round. Whilst grinding—he suggested the term "size reduction" came under three headings—viz., crushing, grinding or shearing, and impact; he preferred the former method as being cheaper, simpler, and more efficient. It was not always realised that the amount of pressure necessary on the scrapers was quite small, ¼ lb. or ½ lb. per sq. in., and he complained that manufacturers were so shy of giving a pulley large enough for the job. He mentioned a case in which four extra machines were run with the same total horse-power simply by increasing the size of the pulleys. There was a special speed for each material, and if the machines were run at 20 per cent. below that speed, they could be left in the hands of more or less unskilled workmen without fear. Generally, the speed could be taken as of the order of 700 ft. per minute.

Meeting the Paint Makers' Needs

Mr. C. A. KLEIN said that whilst it was true that paint or pigment makers did not really know what they wanted in the way of grinding machines, makers of grinding plant were equally to blame. He did not hesitate to say, generally, that the makers of the apparatus had no real care or desire to meet the conditions. More generally, users were asked to accept existing types rather than machines to suit their particular purpose. The travellers for the makers, too, only on rare occasions had any real knowledge of their subject. In order to make progress we required more details as to the size of particles produced, because the distribution of size was varied by almost every type of mill. Fine grinding was fashionable to-day, and although it was important, there was a tendency to overdo it. He was convinced that the problems of grinding could only be properly studied, from the point of view not only of quality, but cost of operation, by the adoption of an organised method of inquiry, the basis of which must ultimately depend on the determination of the size of particles.

Dr. GEOFFREY MARTIN gave some account of the work he has already described to the Institution of Chemical Engineers and regretted the fact that the cutting off of the Government grant did not enable that work to be continued. He claimed definitely to have proved Rittinger's law that the energy necessary for reduction of particle size was directly proportional to the increase of surface.

Mr. C. J. SEAMAN, as a manufacturer, recommended Professor Hinchley to leave the machines alone if he would avoid trouble for his clients. Although it might be said that the manufacturer did not study the wants of the user, frequently the user did not know what he wanted himself.

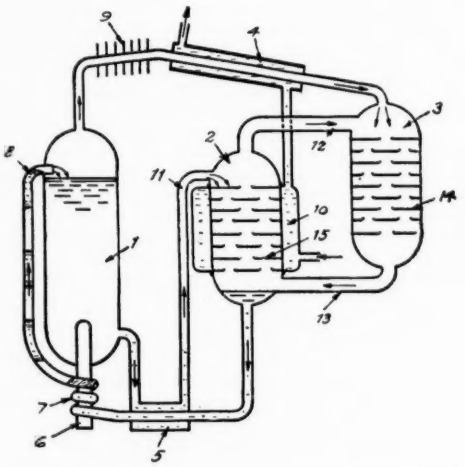
Dr. W. R. ORMANDY asked for serious effort to be made at standardising sieves.

Mr. C. S. GARLAND, proposing a vote of thanks to the openers, regretted the Government refusal to provide for important research of the kind referred to by Dr. Martin.

New Chemical Refrigerator

A Substitute for Chemical Preservatives

THE manner in which chemistry comes to the aid of civilisation is illustrated by a new "Electrolux" refrigerator, constructed on the Platens-Munters system, and demonstrated the other day before a large party of guests at the Savoy Hotel. There has been some controversy of late as to the effects of the use of chemical preservatives in food, and the Ministry of Health on the recommendation of a committee has now issued regulations which, after a given time, will very greatly restrict the use of such preservatives. In substitution for chemicals the committee emphasised the value of refrigeration. Facilities for refrigeration in bulk are provided in the larger freight steamers and in warehouses at the principal ports, but the stages of transit, retail and shop warehousing, hotel and domestic storage are largely uncovered. The new refrigerator, it is claimed, "is capable of forming a continuous chain of protection from the hold of the ship to the pantry of the consumer."



1. Generator.
2. Absorber.
3. Evaporator.
4. Condenser.
5. Temperature exchanger.
6. Heating medium.
7. Thermo syphon.
8. Strong liquid inlet.
9. Rectifier.
10. Cooling jacket.
11. Weak liquid inlet.
12. Hydrogen inlet.
13. Mixed gas outlet.
14. Discs in evaporator.
15. Discs in absorber.

The Electrolux Refrigerator, while cheaper than existing devices, is said to be the only known contrivance that will continuously produce cold without the use of mechanically moving parts. Refrigeration is produced by a closed system which once regulated operates without attention or the addition of anything except heat. It consists essentially of three vessels, in addition to the cooling chamber, which are known as the generator, absorber, and evaporator. Ammonia is used as the working fluid, and hydrogen is employed to keep the pressure uniform throughout the plant. A cylindrical iron vessel containing a solution of ammonia is heated, preferably electrically; the water vapour is condensed and runs back into the generator, and the ammonia passes on, being condensed in a water-jacketed tube leading to the evaporator. Here it descends over baffle plates and evaporates, producing a lowering of temperature of the evaporator and non-freezing solution surrounding it, and so of the chamber which it is required to cool. Ammonia gas, with the hydrogen filling the plant, passes down the evaporator to the absorber, where it meets a weak solution of ammonia running under gravity from the generator. The ammonia is absorbed and passes back to the generator by an ingenious trap actuated by the heating element, while the hydrogen released goes on again to the evaporator. The whole apparatus is of iron and is sealed, and there are no mechanical parts to require attention.

Study of Paints and Pigments

Application of the Microscope

A PAPER on "The Application of the Microscope to the Examination of Paints and Pigments," was read by Mr. C. A. Klein on Wednesday, February 24, before the Royal Microscopical Society, Professor H. E. Armstrong presiding.

Mr. Klein said that the application of the microscope to the examination of paints and pigments was but in its infancy. Knowledge of particle size was of great industrial importance. In general, though not always, a pigment must be considered to be a powdered solid. All powdered solids consisted of particles of varying sizes. Many of the common methods in use for determining the fineness or coarseness of a powder were misleading, and it was here that the microscope became a *sine qua non*. In accurate work it was necessary to determine much more than an average size.

The methods of examining particle size in use were screening, subsidence in liquid media, and elutriation. Screens were only a temporary expedient. Subsidence in media of various kinds gave results which were sometimes open to serious objection. The examination of a powder under a microscope was not so simple as it appeared. A small quantity of the material was rubbed out on to a microscope slide with a medium, examined under a counting eyepiece, and the different ranges of particles tabulated and expressed as percentage weights of the whole. After early difficulties, the Brimsdown Lead Co. had counted a large number of fields on a carefully prepared slide and found that the percentage of pigments of one size differed very widely in each field. Sampling was very difficult. The company now took 20 to 50 grams and separated it into fractions containing as nearly as possible uniform sized particles.

Elutriation

The separation of powders into particles of different sizes had been effected in a number of ways, all dependent on a modification of the early Schoene elutriator. In an elutriation system a suitable medium was necessary in order to prevent flocculation. Water was suitable for few pigments. The sample was treated with the elutriating medium, boiled, passed through a 200 screen, and introduced into the elutriator. Each fraction from an elutriator was weighed and examined microscopically. In the absence of proper elutriation, a surface factor could be employed in paint trials.

In carrying out the research scheme which was being set up in the paint industry attention should be paid to the question of particle size. Another problem was the relation of size of particle to bulking value. The Brimsdown Co. found no clear relation between the air spaces of a pigment and its oil absorption. It was common practice to effect an increase in bulking value by grinding the material in a ball or tube mill. The changes depended on the particle size condition of the original material, and the effects obtained were a function of the particular type of mill, and the speed.

Another problem was the enormous variation of specific surface with particle size. Many factories would benefit by the investigation of their grinding operations. There was an optimum condition of grinding, and uniformity was very important. Coarse particles were a source of expense to the paint maker. The microscopical examination of paints and paint films had begun in several directions. The practical issues involved were immense, and within the next few years the manufacturer of fine pigments would have to know the particle size of his products to the first, second, and probably the third decimal place of microns.

Discussion

The Chairman said there was a danger of studying particle size and neglecting everything else.

Dr. H. H. Morgan hoped that the Research Association would make the particle size a particular object of study.

Mr. H. C. Lancaster said the microscope must not be overrated, although it was very useful.

Dr. J. A. Murray pointed out that the use of dark illumination could be applied in the observation of small particles.

The Chairman said that he was told that oil paints would not be used internally in future, and that cellulose paints were likely to oust them.

Mr. Klein, replying, said that the microscope must be used and not abused.

Indian Chemical Notes

[From Our Indian Correspondent]

Presiding at the annual general meeting of the Indian Chemical Society, in Bombay, Sir P. C. Ray, the famous chemist of Bengal, discussed the question as to who discovered oxygen. He thought that though Priestley prepared the gas first, he was not at all aware of its properties and did not know what part it played in the economy of nature, notably in combustion. Dr. Priestley was a blind believer in the old theory of phlogiston, and thus made blunder after blunder. Lavoisier, on the other hand, was more methodical, and proved the rôle oxygen played in combustion, thereby building the modern structure of chemistry upon a sound basis.

Railway Metallurgical Laboratory

The metallurgical laboratories of the Indian railways, as a recent report shows, are proving extremely useful. The ordinary work undertaken embraces all chemical and physical tests before tenders are accepted on coals, waters, oils, grease, paints, varnishes, cements, and other consumable stores used by all departments on the railways. Samples from all ferrous and non-ferrous casting are regularly analysed, and supervision in the works of the heat treatment of tools, case-hardening, etc., is undertaken. An important feature of the laboratories is the microscopic examination of metals. Gudgeon pins and similar articles are tested for their hardness with the "sclero-scope" before being fitted to the various locomotives.

Indian Aluminium Resources

India is one of the richest bauxite-bearing regions of the world. A recent estimate puts the reserves as follows:—

	Tons.
Bombay Presidency	5,275,000
Himalayan region	1,000,000
Central India and Central Provinces ..	20,630,000
Behar and Orissa	1,200,000
Total	28,105,000

These are only minimum estimates, and a good many smaller deposits have not been taken into consideration. To make the manufacture of aluminium commercially successful hydro-electric power is required near the deposits, but some important aluminium compounds, which have a great application in arts and industries, can easily be manufactured. These are aluminium hydroxide, alumina, and alum. The attention of industrialists is being drawn to these possibilities.

Indian Science Congress

Mr. Albert Howard, the Director of the Institute of Plant Industry, Indore, in his presidential address at the last session of the Indian Science Congress, which was held in Bombay in the first week of January, discussed the new chemical problems that arose in agriculture from the application of irrigation to land in India. The solution of these problems is specially valuable at this date, because India was now embarking on the great irrigation venture in Sind under the Sukkur Barrage scheme. It appeared that under canal irrigation, alkali patches in land appear and grow in size until the land goes out of cultivation. It was therefore necessary to investigate their origin, so that a new method of irrigation can be evolved (intermediate between the modern perennial system and the old basin method) by which irrigation and soil aeration can be combined.

Match Factory in Behar

The Government of Behar and Orissa have established a demonstration match factory at Patna. The objects of the factory are to see whether good matches can be made in India from Indian woods at a profit, to enable Government to give advice with confidence to persons interested in the match industry, and to train persons in the up-to-date processes. The woods to be used were tested in Calcutta, as well as in Bombay, by the Match Manufacturing Supply Co., which has also supplied the machinery to the factory. The estimated minimum output of the factory is 30,000 gross per annum. It is considered that forty such factories will be required to be established in Behar before the full demand for matches in the province is met.

S. G. W.

Chemists in Industry

The Need for Educating the Public

Professor G. G. Henderson, president of the Institute of Chemistry, was the chief guest at the annual dinner of the Bristol and South Western Counties Section on Saturday, February 27. Sir Ernest Cook presided.

Professor Henderson, in reply to the toast of "The Institute," said he was particularly glad to find in Bristol that it had become an established custom for members of the different societies to meet socially or otherwise instead of individually. It must appeal to everybody that in any country which had passed beyond the more primitive stages of civilisation the chemist was, to put it in the most modest terms, absolutely indispensable. There was not a single productive industry in the country which was not ultimately dependent upon the work of the chemist. Therefore, unless the people of this country were prepared to realise that its future prosperity was dependent to a very large extent upon their attitude towards scientific work, and in particular towards chemical work, the future, he believed, would be rather black. Their profession did not receive the recognition amongst their fellow citizens which was its due. They themselves were largely to blame for that. They were oppressed by frightfully exaggerated modesty. They were as a rule so wrapped up in their work that they did not care whether other people knew anything about it or not. The only way was to educate the great mass of their fellow citizens. When once that was achieved, that education would actually infiltrate upwards until it penetrated the minds of our legislators. He claimed that the best method of education was through the public Press. With the help of the Press—and it was coming by degrees—they could bring about a change of mind; and if they could do so they could claim that they had done something worth doing for the country and not for their own individual profession's sake only.

Sir Ernest Cook said the war showed that when the necessity arose the chemists of Britain were able to hold their own with any chemists in the world. It was an immense advantage that they should have closely connected with the management of industry skilled and trained chemists capable of carrying out the work required in the highest and best scientific manner. The sooner there were trained and skilled chemists at the head of all manufacturing industries the sooner would they prosper to a much greater extent than they had hitherto done. But that carried an immense responsibility on those who took up the profession to make themselves thoroughly competent to give substantial scientific advice.

The Ideal Homes Exhibition

The Ideal Homes Exhibition opened at Olympia on Tuesday and continues until March 27.

Indirectly there are some exhibits of chemical interest. British Celanese, Ltd., demonstrate the remarkable scope offered by their product, and wall papers and paints, etc., are prominently displayed. The Salubra Co., London, show "Salubra," a paper that will wash but will not fade. The Walpamur Co., Ltd., Darwen, Lancs, display a wide range of paints, and Naylor Brothers (London), Ltd., show "Petrumite." This product is a prepared oil paint for use on plaster, cement, wood, or other surfaces, and it will stand extreme exposure. It dries so hard that it can be mistaken for stonework, and it is washable. It can be adjusted for spraying purposes. "Fastain" is another of their products. Paripan, Ltd., have a wide range of British enamels, etc., so have Sissons Brothers and Co., Ltd.

A particularly attractive stand is that of United Water Softeners, Ltd., where the "Permutit" system is demonstrated especially in its domestic application. The "Permutit" household softener is compact, has no moving parts, and requires no chemicals. The specially-prepared natural green sand renders all hard water soft without impairing the taste or natural gases. The apparatus can be cleansed with salt solution. Method of testing water and specimens of boiler plates, pipes, etc., damaged by corrosion, are shown. Major and Co. demonstrate the use of Solignum wood preservative.

Sulphate of ammonia is included in the London Gas Exhibit and there is a complete Novocrete pavilion in the Housing Section, where the British Portland Cement Association is

also represented. The Mond Tar By-Product Syndicate show their Melanoid paints, which provide lasting protection for all metal and woodwork. Zulite is their wood preservative, which also acts as a paint and may be varnished. Disinfectants, soaps, candles and pharmaceutical lines are, of course, very prominent, and Grieve and Gordon show "G.G." Eucalyptus Disinfectant, a non-poisonous germicide miscible with water and produced from pure eucalyptus oil.

Jet Dispersing

A Remarkable Method for Dissipating the Energy Released

ONE of the problems in connection with reservoir, barrage, and hydro-electric work (a technical correspondent writes) has been to know how to deal with the enormous energy released when water is discharged from an open pipe into the air. The fact that an apparatus has now been invented to enable even hundreds of tons of water a minute at enormous heads of several thousand feet to be discharged harmlessly is of particular interest to the chemical and many other industries since the same principle can be applied, for example, to the discharge of any liquid, blown at considerable pressure by means of a pump or compressed air from a small bore pipe into a tank or other receptacle of small dimensions.

The apparatus in question is the "Glenfield" patent free vortex jet disperser, a production of Glenfield and Kennedy, Ltd., of Kilmarnock, and in outward appearance is an open cylinder fixed to the end of the pipe. The principle is essentially to give the water or other liquid such a motion that it is split up into millions of drops which spread themselves out over an area of 100–500 times that of the unbroken "solid" bore of liquid that would otherwise issue from the end of the pipe in the ordinary way. Consequently the air has a definite cushioning or retarding effect on each individual drop, and the total resistance is about 800 times that of the ordinary unbroken jet with the net result that the velocity at the surface of the liquid in the pond, tank, or receptacle is no more than that of falling rain.

The first installation of this disperser was at the Cray Reservoir, Swansea, on a 36 in. pipe with a pressure of 85 ft. behind, and the figures involved are remarkable. Approximately 335 tons of water a minute are being dropped on to a stilling pool only 2 ft. deep and it is calculated from theoretical considerations, based on a normal velocity of 50 ft. per second, the huge mass of water, 36 in. in bore, is split up into about 600,000,000 drops per second, each of which is opposed by the friction of the air. A discharge of this character without a deep and extensive stilling pool may easily do serious damage in the way of washing away soil and rock for example, which in fact actually happened at Swansea, so that before the disperser was fitted the valves could only be opened about 6 or 7 in.

A number of these jet dispersers are now at work, including a set in India on the Tata hydro-electric scheme in Bombay fixed to 6 in. pipes with a head of 1,672 ft., being the drainage discharge of the excited turbines, and as already stated the principle seems to be equally applicable to the smallest pipes.

American Chemical Society Celebrations

MANY distinguished chemists will visit America to participate in the semi-centennial celebration of the American Chemical Society in Philadelphia during the week beginning September 6, when Priestley and other pioneers will be honoured.

The fourth annual colloid symposium will be held at the Massachusetts Institute of Technology, June 23, 24 and 25. Professor James W. McBain, of the University of Bristol, will be the guest of honour. It is planned to found an Institute for Research in Colloid Chemistry at a cost of $1,000,000.

A discussion on "The Rôle of Chemistry in the Future Affairs of the World" at the 1926 Conference of the Institute of Politics at Williamstown, Mass., will be organised and conducted with the assistance of the American Chemical Society.

The International Union of Pure and Applied Chemistry will meet in Washington during the week of September 13. This will be the first meeting held by the Union in America. The organisation is the virtual successor of the International Congresses of Applied Chemistry, the last of which met in 1912.

Chemical Matters in Parliament

Vinegar Substitutes

The Vinegar Bill to prevent fraudulent sale of imitation products was presented by Mr. Greene (House of Commons, March 1), and was ordered to be read a second time on March 16.

British Industries Fair

Mr. Samuel (House of Commons, March 1) said that an advisory committee of exhibitors unanimously expressed the opinion that the B.I.F. had been a success, and urged that it should be continued permanently. His information was that, both in the volume of actual business at London and Birmingham, and in the setting up of connections for future business, the fair was the most successful since the war. Cards of invitation were presented at the London Fair by 1,242 overseas buyers and 55,693 home buyers, some of the latter being agents of overseas firms, as compared with 1,031 and 24,195 respectively in 1924.

Duty on Crude Calcium Molybdate

Mr. Harland (House of Commons, March 1) asked why a duty of 33⅓ per cent. had been levied upon a parcel of crude calcium molybdate imported. This was used as a substitute for ferro molybdenum as an alloying compound in the manufacture of steel; and whether, having regard to the fact that ferro molybdenum and the ores of molybdenum do not exist in this country and are therefore admitted free, why calcium molybdate, which also did not exist here, was not placed in the same classification?

Mr. A. M. Samuel said that no complaint as to the inclusion of this item in the list was made within the prescribed period. Calcium molybdate could be manufactured in this country from imported duty-free materials.

Sugar Beet Subsidy

Sir P. Cunliffe-Lister (House of Commons, March 2) regretted that he was unable to give the amount of the sugar beet subsidy paid in European producing countries.

Dumping of Zinc Oxide

Mr. Penny (House of Commons, March 2) asked the President of the Board of Trade whether he was aware of the large amount of zinc oxide being dumped here from America and Germany at about the same price, in the case of America, as that country was prepared to sell us the raw material (spelter), and at a price in the case of Germany of about £8 per ton less than the figure quoted here; and whether he would safeguard the British manufacturer.

Sir P. Cunliffe-Lister said that the imports of zinc oxide from the U.S. had recently shown a considerable increase, and complaints had reached him as to the price. If imported zinc oxide was being sold here at prices below the cost of production in the country of manufacture, then British interests concerned should apply under the Safeguarding of Industries Act, 1921, for imposition of an anti-dumping duty.

The Production of Fats and Oils

IN a lecture before the Liverpool University Chemical Society, on Friday, February 26, on fats and oils, Professor T. P. Hilditch said that fatty oils, like olive and linseed oils, and fats such as tallow, could be split up into glycerine and acids consisting largely of carbon, hydrogen, and some oxygen. They were formed in plants and originated from water and the carbonic acid of the air. When they were eaten by animals the fats were changed chemically, giving us new fats such as butter, lard and tallow.

Mainly by the agercy of ferments and sunlight the plant built up sugars and starchy substances as it grew. When the fruit ripened some of these materials were transformed into fats which were stored in the fleshy part or in the seed kernel. In animals similar changes took place in the liver.

Broadly speaking, the nut oils required tropical climates, oils like cottonseed, maize and olive oils required sub-tropical climates, and the linseed oils and tallows could be produced in temperate zones. All these climatic conditions were available in the British Empire. Scientific control of fat production lay in selecting species and conditions of growth most suitable for producing fats of definite kinds, and in the extraction of the valuable fat under the cleanest and most economical conditions. Much work remained to be done on the formation of fat by the living organism.

From Week to Week

MR. W. J. COURTAULD is to present Braintree with a fully equipped new Town Hall.

DR. MARGARET FISHENDEN, of the Fuel Research Board, lectured on domestic heating at the Royal Society of Arts on Wednesday, February 24.

LADY BEILBY has presented to Glasgow Royal Technical College a pipe organ in memory of the late Sir George Beilby, who was chairman of the governors from 1907 till 1923.

PETROL COMBINE PRICES were advanced by one penny per gallon throughout the United Kingdom and Northern Ireland on Friday, February 26. The new figure is 1s. 8½d. per gallon.

SIR ALFRED MOND has notified the Carmarthen Liberal Association that he has decided not to vacate his seat at present, but that he has no intention of again contesting the constituency.

THE GRASSELLI CHEMICAL CO. has issued rights to stockholders to subscribe to an issue of $2,000,000 additional stock. The money received will be used for plant extensions and improvements.

TO MARK HIS FIFTY YEARS of service at the Mersey Copper Works of Thomas Bolton and Sons, Widnes, Mr. George Rathbone has been presented with a case of pipes and a smoking cabinet by the firm, of which he is a director. Mrs. Rathbone received a diamond pendant.

DR. M. W. TRAVERS, F.R.S., formerly Professor of Chemistry at University College, Bristol, lectured to Bristol Rotary Club on Monday, on "Scientific Industrial Research." He said that in 1898, with Sir William Ramsay, they passed a current through a new gas and discovered the brilliant crimson glow of Neon.

RECENT WILLS INCLUDE.—Mr. A. W. Gerrard, of Moseley, Birmingham, and of Cuxson, Gerrard and Co., manufacturing chemists, Oldbury, £19,945.—Mr. E. Bull, Lewisham, fertiliser manufacturer, £12,248.—Mr. W. B. Bishop, of Beckenham, and of Alfred Bishop, Ltd., manufacturing chemists, £162,780.

AT THE ANNUAL MEETING of the Bradford Dyers' Association on Friday, February 26, Mr. G. Douglas, chairman, refuted the suggestion that dyeing prices were having a detrimental effect on export trade as not being supported by facts. What the textile trade in general was suffering from was the absence of bulk business.

NITROGEN IN THE SOIL was the subject of a lecture by Professor R. A. Berry, Agricultural College, before the Glasgow Sections of the Institution of Chemistry and the Society of Chemical Industry, on Friday, February 26. He quoted results of research at Rothamsted and dealt with analytical methods of determining the nitrogen. Professor F. J. Wilson presided.

THE BOARD OF TRADE has appointed Mr. W. S. Jarratt to be Comptroller-General of Patents, Designs and Trade Marks, in succession to Mr. W. Temple Franks, C.B., who retires as from March 1 on account of ill-health. Mr. Jarratt has been one of the assistant comptrollers at the Patent Office since 1921; he was a scholar of Trinity College, Cambridge; was a Wrangler and obtained a first-class in the Natural Science Tripos.

PROFESSOR MILROY, professor of bio-chemistry at Queen's University, Belfast, delivered last week one of a series of lectures arranged in connection with the Belfast and District Section of the Institute of Chemistry, on "Micro-Analytical Methods." Professor Scott Robertson presided. Professor Milroy pointed out that recent advances in bio-chemistry had been largely dependent on the evolution of suitable micro-analytical methods. For example, the discovery of insulin would probably have been delayed had not micro-methods for the estimation of blood sugar been available.

SIR J. F. FLANNERY, presiding at the annual meeting of the South Suburban Gas Co. on Friday, February 26, in London, said that last year they were compelled to raise the price of gas to meet the declining income from residuals. The returns from coke, tar and ammonia had dropped by no less than £72,000, and such was the common experience among gas undertakings. The outlook for coke at good prices was favourable; in fact, they had been unable to meet the demand for graded coke at times. There was no indication that the tar market would improve, but this year's income was not expected to fall below last year's figures.

A NUMBER OF CHANGES are announced in the constitution of Maxted and Knott, Ltd., engineers, of 23, Queen Anne's Gate, Westminster. Mr. F. Knott, one of the founders of the firm, has decided to retire from active practice after some thirty-four years of continuous activity in the company. Mr. Knott does not propose to take any active part in the details of the business, but he retains a financial interest, and will continue to take an advisory part in its affairs. Mr. E. G. Walker, of Westminster, has joined the firm on the retirement of Mr. Knott. His own practice has now been incorporated with that of the firm. Maxted and Knott, Ltd., will continue to occupy their present temporary head offices at Dunstable, and to have their registered London offices at 23, Queen Anne's Gate, Westminster. Messrs. G. V. Maxted, E. G. Walker and G. V. J. Maxted will be responsible for the business.

SIR WILLIAM BRAGG was presented to H.M. the King at the levee at St. James's Palace on Tuesday.

AN INAUGURAL MEETING of the proposed Institution of Fuel Technology was to be held in London on Friday. A report will appear next week.

DR. F. M. ROWE succeeds the late Professor E. Knecht in the Department of Applied Chemistry at Manchester College of Technology at a salary of £700 per annum.

DR. J. VARGAS EYRE, F.I.C., has been appointed by the Board of Trade to the committee formed to consider the growing of flax seed and flax in the U.K. on a commercial scale.

MR. F. W. FIRTH, director of Elliott Bros., Ltd., wholesale druggists, of Sydney, N.S.W., is due in London shortly, and can be addressed care of Grimwade, Ridley and Co., 124, Minories, London, E.C.1.

COMPLAINTS THAT WASHINGS FROM TAR ROAD DRESSINGS had proved fatal to fish in the River Rye were recorded at Kirbymoorside Council meeting on Wednesday. It was resolved to use other materials in future.

THE SYNTHETIC AMMONIA PLANT of the French Government at Toulouse is progressing rapidly, and it is planned to have one-fourth of the plant operating by the middle of 1926. Ammonium sulphate production is expected to reach 90 tons daily by the end of the year.

IN THE CHANCERY DIVISION on Wednesday, the hearing was begun of an action by the Salt Union, Ltd., against Dorman, Long and Co., Ltd., Port Clarence, Durham, in which the question involved is the use of waste heat from blast furnaces for heating salt-pans. The hearing was adjourned.

THAT ADVERTISING can sell technical products just as well as proprietary articles was the opinion of Mr. S. J. Pearson, lecturing on the subject at Manchester Publicity Club on Tuesday. Technical goods were subject to the same laws of selling, and he advocated aggressive sales planning after careful market analysis.

A NEW GLASS, known as Lamplough's Vitaglass, has been produced as the result of research by Mr. F. E. Lamplough at the Darnall Research Laboratories, Sheffield University. It is claimed that this glass, which contains a high proportion of quartz, admits all the ultra violet rays, many of which are excluded by ordinary glass.

A RIDER BY THE JURY in the case on Wednesday of an inquiry into a fire at Greenhill and Sons, celluloid manufacturers, Whitefriars, stated that it should be compulsory that buildings where celluloid and inflammable goods were, should be brought under the regulations of the Institute of Electrical Engineers, and that all packages and boxes containing celluloid articles should be labelled "Highly inflammable."

THE SALE BY AUCTION is announced and will take place on March 10 of chemical works plant at the Prussiate Works, Buxton Road, off Edge Lane, Droylsden, Manchester. Fifteen tons of chemicals will be included and details may be obtained from Airey, Entwistle and Co., 10, Norfolk Street, Manchester.—The date fixed for the sale of the Eagle Chemical Works, New Lane, Oswaldtwistle, referred to last week, is March 17.

THE OFFICIAL REPORT (No. 2765) under the Boiler Explosions Act, into the explosion from a cast iron stop valve chest at the works of the United Alkali Co., Ltd., Fleetwood, has now been issued by the Stationery Office. The explosion, which took place on October 13, 1925, was caused by the fracturing of the stop inlet branch owing to the material in this part of the casting being of weak section due to inequality of thickness of the metal, which, after long service, was unable to withstand normal stresses. Full diagrams are included in the report.

MR. PERCY MAY, writing to *The Times* from The Laboratory, Monument Chambers, King William Street, E.C.4, draws attention to British progress in fine chemicals and to the fact that their production constitutes a vital key industry. For many reasons, he says, this industry cannot be extemporised, and if left, its revival would be almost impossible. He pleads for continuity of the Government financial policy for a further definite period of years. (Part I of the Safeguarding of Industries Act expires at the end of September, 1926.)

SEVERAL TRADE FIRES have occurred recently. As reported last week, a serious fire destroyed No. 1 oil and cake seed mill at Lever Brothers' works, Port Sunlight, on Thursday, February 25, and the damage is estimated at from £45,000 to £50,000. Many firemen were affected by the fumes arising from stores of linseed and other oil cake materials. The cause of the fire is unknown.—A fire occurred at a store of the Explosives Loading Factory, about four miles from Faversham, on the Swale, on Saturday, February 27. The fire among the chemicals was increased by the application of water, and the building and contents were destroyed.—The Colonial Sugar Refining Co.'s works at Glanville, South Australia, have been destroyed by fire, damage to buildings and stocks being estimated at £850,000.

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The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each

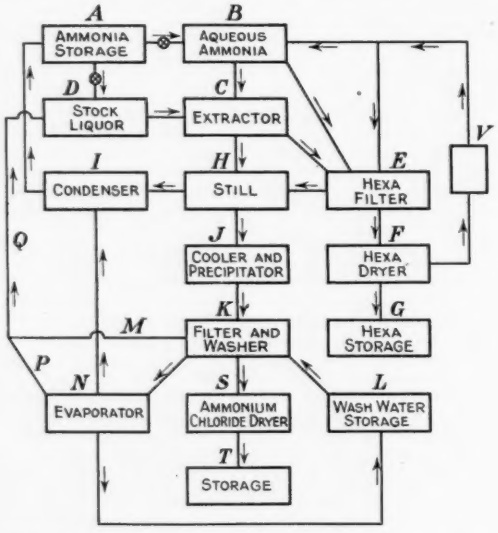
Abstracts of Complete Specifications

246,394. DYESTUFFS, MANUFACTURE OF. O. Y. Imray, London. From Soc. of Chemical Industry in Basle, Switzerland. Application date, August 7, 1925.

These dyestuffs are obtained by coupling 3-aminonaphthalene-1-8-dicarboxylic acid with a diazo compound or by diazotising it and coupling it with a coupling component. By a suitable selection of the diazo compound or the coupling component the products may be acid dyestuffs, direct dyeing dyestuffs, or lake dyestuffs. Chromium compounds can be obtained which dye wool yellow to orange, red, violet, and green. The green dyestuffs are obtained by coupling the dicarboxylic acid with an ortho-oxydiazo compound. In an example, 3-amino-naphthalene-1 : 8-dicarboxylic anhydride is dissolved in hot water containing caustic soda lye, and soda ash is added. The mixture is cooled and mixed with a diazo compound from 1-amino benzene-4-sulphonic acid. The dyestuff is salted out, filtered, and dried. It gives fast red shades on wool in an acid bath. Similar dyestuffs can be obtained by employing toluidine sulphonic acid, a chloraniline sulphonic acid, an aminophenol ether sulphonic acid, or a naphthylamine sulphonic acid. A number of examples are given of the use of various coupling components and diazo compounds, and also the treatment of dyestuffs with chromium-containing substances.

246,415–6. SEPARATION OF HEXAMETHYLENE-TETRAMINE FROM AMMONIUM CHLORIDE. H. Wade, London. From S. Karpen and Bros., 636, West 22nd Street, Chicago, Ill., U.S.A. Application date, October 23, 1925.

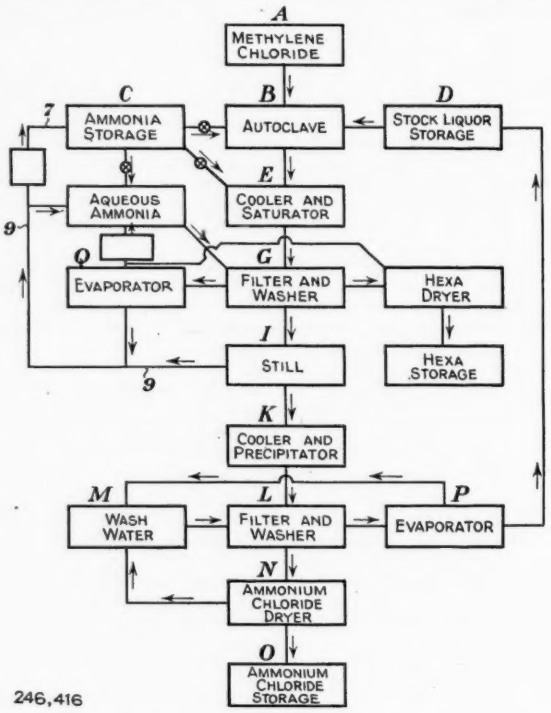
246,415. It has been found that hexamethylene tetramine and ammonium chloride can be separated by taking advantage of the fact that if the solution is charged with ammonia gas, the solubility of hexamethylene tetramine is reduced to 10–15 per cent. of its solubility in water, while the solubility of



246,415

ammonium chloride is increased. The process is applicable to the separation of a mixture of the dry salts obtained by reacting on methylene chloride with liquid ammonia, or of a wet mixture of salts.

The mixture of dry salts is placed in an extractor C and treated with a solution of ammonium chloride saturated with gaseous ammonia from the tank D. This liquor becomes saturated with ammonium chloride and passes to a still H where the ammonia is distilled off and passes through a condenser I to the storage tank A. The liquor from the still H passes to a cooler and precipitator J where ammonium chloride is deposited, and thence to a filter K. The liquor passes back through pipes M, Q, and tank D for use again. The salt in the filter K is washed with water free from ammonia, from the tank L, and ammonia being subsequently distilled off in an evaporator N. The concentrated liquor passes back through pipes P, Q to the tank D and the ammonium chloride passes to a drier S and storage vessel T. Hexamethylene



246,416

tetramine finally remains in the extractor C and passes to a filter E where it is washed with aqueous ammonia from a tank B. The product finally passes to a drier F and storage tank G. The vapour from the drier F passes to a condenser V and storage tank B.

Another application of the invention is described in which methylene chloride and ammonia react in an autoclave at 100° C., the ammonia being in an excess of 300 to 400 per cent. The product is treated as above.

246,416. An autoclave B receives methylene chloride from a tank A, ammonia from a tank C, and a stock liquor containing ammonium chloride with some hexamethylene tetramine from a tank D. The ammonia is in excess of from 300 to 400 per cent. The reaction products pass to a cooler and saturator E, where they are saturated with ammonia to precipitate the hexamethylene tetramine. The latter is collected in a filter G from which the liquor passes to a still I, where ammonia is distilled off, and returned through pipes 9, 7 to the ammonia storage tank C. The hexamethylene tetramine is washed with ammonia which is then recovered in an evaporator Q. The residue from the still I passes to a precipitator K and filter L, where the precipitated ammonium chloride is removed and passed to the drier N and storage O. The filtrate passes to an evaporator P for partial evaporation, and the mother liquor is returned to the tank D. Water evaporated from the drier N and evaporator P passes to the tank M.

(*Continued on p. 233*)

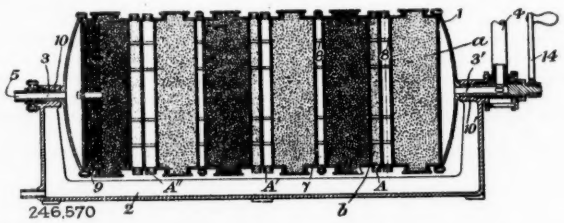
(*Continued from p. 232*)

246,529. HYDROXY ANTHRAQUINONES, PRODUCTION OF. J. Thomas, H. W. Hereward, and Scottish Dyes, Ltd., Murrell Hill Works, Carlisle. Application date, October 22, 1924.

Specification No. 174,101 (see THE CHEMICAL AGE, Vol. VI, p. 248) describes the treatment of 2-chlor-anthraquinone with caustic alkali in the presence of an oxidising agent in an autoclave to obtain alizarine. It has been found that alizarine is practically insoluble in a 20–25 per cent. caustic soda solution, and by making use of this fact the autoclave melt can be filtered and the caustic soda liquor used again. Alternatively, the autoclave charge is diluted to dissolve the alizarine, which is then precipitated as the calcium lake by adding lime or calcium hydroxide. The lake is filtered off, and the caustic soda concentrated to 20 to 25 per cent. for use again. The presence of sodium chloride formed in the reaction does not affect the repeated conversion of 2-chlor-anthraquinone into alizarine. Instead of halogen anthraquinone derivatives, sulphonic acid derivatives may be employed. In an example, 2-chlor-anthraquinone is mixed with caustic soda solution and sodium chlorate solution, and heated in an autoclave to 180° C. for 24 hours. The autoclave may be of iron, lined with silver or monel metal. The mixture is then allowed to cool and filtered through a monel metal filtering cloth. The filter cake is then boiled with water and filtered, and the solution treated with hydrochloric acid and the alizarine filtered off. The yield of alizarine is nearly theoretical, and is of high purity. The first filtrate containing caustic soda solution can be used again. Another example is given of the manufacture of alizarine from β-sulphonic acid and a further example describes the manufacture of modified alizarines —*i.e.*, anthrapurpurin (1·2 : 7-tri-hydroxy-anthraquinone) and flavopurpurin (1 : 2 : 6-tri-hydroxy-anthraquinone).

246,570. COLLOID SOLUTIONS, PREPARATION OF. C. S. Smith, 41, Park Row, New York. Application date, October 28, 1924.

In this process an electrically conducting liquid is brought into contact with layers of electro positive material and electro negative material, both in a subdivided condition, and electrolytic action takes place which produces a colloidal solution.



The electro positive material may be carbon in the form of bone black, and the electro negative may be a corrodible metal such as magnesium, aluminium, iron, or copper. The colloidal matter is usually the metal hydroxide. The current generated internally is usually sufficient, but an external source of current may be employed in addition. After treatment the liquid is filtered to remove any coarse particles. Conductivity is provided in the liquid by means of salts usually present, *e.g.*, in water, but other salts may be added, such as sodium chloride, ferrous or ferric chloride. An external current may be employed if the water contains very little mineral salt.

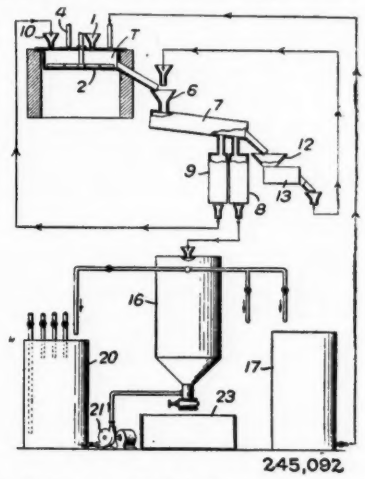
The apparatus comprises a cylindrical vessel supported in a frame 2 by trunnions 3, 3′. The vessel is divided into sections A, A′, A″, each consisting of two separate compartments, *a*, *b*. The chambers *a* are filled with a mixture of aluminium and sand to provide an inert filtering substance, and the chambers *b* are divided into two parts, one of which contains finely divided aluminium and the other crushed carbon. Porous partitions 7 are arranged between the chambers *a*, *b*, and also between the compartments of the chambers *b*. The partitions consist of two or more perforated screens kept apart by rings 8 of silica or copper. The chamber A″ may also contain porous screens 9 of aluminium or other electro negative metal. The trunnions 3, 3′ are supported by bearings 10, 10′ formed in the frame 2. The vessel may be rotated by a crank 14 to ensure uniform action. The water passes through the apparatus from the inlet 4 to the outlet 5. The product, *i.e.*, water containing a colloidal suspension, has a number of applications, *e.g.*, in the treatment of brine, salt may be manufactured without the necessity for adopting a bleaching process.

NOTE.—Abstracts of the following specifications, which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—225,842 (F. Johannsen), relating to treatment of ores and metallurgical products, see Vol. XII, p. 138 ; 225,885 (Naamlooze Vennootschap Handelsonderneming Feynald Maatschappij Tet Exploitatie van Octrooien), relating to reduction of organic compounds, see Vol. XII, p. 162 ; 228,557 (Farbwerke vorm. Meister, Lucius, & Brüning), relating to dyeing of cellulose esters, see Vol. XII, p. 363 ; 228,889 (Aktiebolaget Separator), relating to refining of vegetable oils, see Vol. XII, p. 382 ; 228,913 (Farbwerke vorm. Meister, Lucius, & Brüning), relating to production of azo dyestuffs see Vol. XII, p. 382 ; 229,668 (Farbenfabriken vorm. F. Bayer and Co.), relating to new dyestuffs of the anthraquinone series, see Vol. XII, p. 462 ; 231,149 (Soc. of Chemical Industry in Basle), relating to dyestuffs and intermediate products, see Vol. XII, p. 537 ; 236,151 (Algemeine Vergasungs Ges.), relating to distillation of bituminous coal in several stages, see Vol. XIII, p. 232.

International Specifications not yet Accepted

245,092. BASE EXCHANGING SUBSTANCES. Cochrane Corporation, 17th Street, Philadelphia, U.S.A. Assignees of S. Dahl-Rode, Philadelphia, U.S.A. International Convention date, December 23, 1924.

An alkaline earth aluminium silicate is treated with an alkali solution to obtain a base-exchanging substance. Thus, a blast-furnace slag is granulated in water and ground in a ball mill, and then delivered through a hopper 1 to a chamber T



having an agitator 2. Alkali hydrate or carbonate is added, and the mixture heated till dry. The product may be refined by passing it through a hopper 6 to a sifter 7, from which the material passing through a 40 mesh screen passes to a vessel 9 and thence back to the hopper 10. Material passing through a 20-mesh screen passes to a vessel 8 and thence to a leaching vessel 16 for treatment with hot water from a tank 20. The solution, which contains alkali, is returned to the chamber T. The granular material is again washed with hot water, and then with weak sulphuric or acetic acid. A further washing with water follows, and then with alkali chloride to replace the remaining calcium in the double silicate with alkali. The coarse material from the sifter 7 passes to a hopper 12 and crusher 13 and thence back to the hopper 6.

245,128. DYES. I. G. Farbenindustrie Akt.-Ges., Leverkusen, near Cologne, Germany. Assignees of Farbenfabriken vorm. F. Bayer and Co., Leverkusen, near Cologne, Germany. International Convention date, December 19, 1924.

Azo dyes from diazotised *o*-aminobenzaldehyde or a substitution product and the usual components are treated with hydroxylamine without isolating the initial dyestuff. Pro-

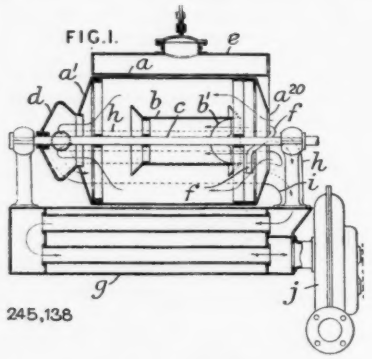
ducts which dye wool in brown, yellow, and red shades which may be after-chromed or after-coppered are obtained by treating the dyes from *o*-aminobenzaldehyde and 2-phenylamino-8-naphthol-6-sulphonic acid, 1-ethylamino-8-naphthol-3 : 6-disulphonic acid, or 4-sulphophenylmethyl-pyrazolone with hydroxylamine hydrochloride in presence of sodium acetate. Primary disazo dyes from 5 : 5^1-dioxy-2 : 2^1-dinaphthylamine-7 : 7^1-disulphonic acid and *o*-amino-benzaldehyde with or without anthranilic acid, may be treated with hydroxylamine hydrochloride and sodium acetate.

245,129. SOLVENTS. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Assignees of Chemische Fabriken vorm. W. Ter Meer, Uerdingen, Niederrhein, Germany. International Convention date, December 22, 1924.

Resins, waxes, fats, cellulose esters or dyestuffs are obtained in solution with the aid of ethylene glycol or its higher homologues such as propylene or butylene glycol. Compounds having the formula R-O-CH_2-CH_2-OH where R is methyl, ethyl, isopropyl, butyl, or amyl may be used. They can be obtained by treating glycol-chlorhydrin with alcoholates.

245,138. SULPHUR BURNERS. V. G. R. Allienne, 15, Place St. Arnand, Rouen, France. International Convention date, December 24, 1924.

Air for combustion enters the apparatus through an opening a^{20}, and passes through and around the tube *b*, which is fixed



to a shaft *c*. The end a^1 of the rotating casing *a* turns about a fixed cap *d* through which the shaft *c* passes. The air supply is regulated by pivoted flaps b^1, and the gases pass through pipes *h* to a cooler *g*. The sulphur is supplied from a superposed vessel *a* in which it is kept molten, through valve controlled pipes *f*. Air is drawn through the apparatus by a fan *j*.

245,152. ALKALI CYANIDES. Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler, 7, Weissfrauenstrasse, Frankfurt-on-Main, Germany. International Convention date, December 23, 1924.

Hydrocyanic acid is passed into an aqueous mixture of an alkali sulphate and lime at a temperature of 15° C. or below, or at a low concentration of alkali sulphate. In these conditions, a double salt of calcium and alkali sulphate is not produced. Part only of the alkali sulphate may be used at the beginning of the reaction, further quantities being subsequently added, either during or after the passage of hydrocyanic acid. In the case of a low concentration of alkali sulphate, the temperature need not be kept so low.

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247,932. Method for simultaneously synthesising methanol and liquid hydrocarbons. Patart, G. February 23, 1925.

247,940. Manufacture of naphthasulphonic acids and the salts thereof. Schestakoff, P. I. February 17, 1925.

247,956. Process for the purification of condensation products produced from phenols and aldehydes. Bakelite Ges. February 17, 1925.

247,957. Process for the production of compositions containing phenol-aldehyde condensation products. Bakelite Ges. February 17, 1925.

247,986. Manufacture of new complex antimony compounds. I. G. Farbenindustrie Akt.-Ges. February 19, 1925.

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225,833. Zinc oxide, Manufacture of. Naamlooze Vennootschap Handelmaatschappij Grikro. December 3, 1923.

226,822. Dehydration of volatile fatty acids, Continuous process for. Soc Anon. des Distilleries des Deux-Sèvres (formerly Soc. Ricard, Allenet, and Cie). December 28, 1923.

232,206. Esters of 4-oxy-piperidine derivatives, Manufacture of. H. Staudinger. April 8, 1924.

232,207. Derivatives of 4-oxy-piperidine, Manufacture of. H. Staudinger. April 8, 1924.

232,909. Styrol and its homologues, Manufacture of. Naugatuck Chemical Co. May 7, 1924.

239,502. Fractional distillation and condensation of complex mixtures, Process and device for. Soc. Anon. d'Ougree-Marihaye. September 8, 1924.

247,078. Aluminous materials, Treatment of. H. Spence, W. B. Llewellyn, and P. Spence and Sons, Ltd. August 6, 1924.

247,241. Active carbons, Manufacture and use of. J. N. A. Sauer. August 13, 1924.

247,261. Vat colouring matters, Manufacture and production of. J. Y. Johnson. (*Badische Anilin and Soda Fabrik.*) November 6, 1924.

247,250. Acridine derivatives and their solutions, Process for the production of. C. Schnorf and F. Hefti. October 14, 1924.

247,300. Distillation of carbonaceous materials. E. M. Salerni. Nov. 14, 1924.

247,324. Lignites, Apparatus for the distillation of. E. Heneage. November 28, 1924.

247,378. Sulphide dyestuffs, Manufacture of. A. G. Bloxam. (*Akt.-Ges. für Anilin Fabrikation.*) February 10, 1925.

247,405. Potassium salts, Process for the production of. E. Niccoli. March 6, 1925.

247,439. Alkali metal silicates which are soluble in water, Process for the production of. B. E. D. Kilburn. (*Norsk Hydro-Elektrisk Kvaelstofaktieselskab*). May 16, 1925.

247,471. Desulphurisation and concentration of sulphide iron ores. W. S. Miller. August 12, 1925. Addition to 236,256.

Applications for Patents

Baddiley, J., Brightman, R., British Dyestuffs Corporation, Ltd. and Chorley, P. Manufacture of azo dyes. 5,288. February 24.

Bentley, W. H., Blythe and Co., Ltd., W., and Catlow B. Manufacture of lead nitrate. 5,218. February 24.

Carpmael, W. and Chemische Fabrik auf Actien vorm. E. Schering. Manufacture of halogen-substituted oxindol-3-acetic acids and homologues thereof. 5,594. February 27.

Coley, H. E. Low-temperature carbonisation of coal. 5,290. February 24.

De Wendel et Cie, Les Petits Fils de F. and Liquid Oxygen Explosives, Ltd. Liquid-air, etc., explosives. 5,433. February 26.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of porous adsorbents. 5,045. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of di-ammonium phosphates. 5,046. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of glycol ethers. 5,047. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Dyeing cellulose esters, etc. 5,048. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Dyeing and printing cellulose esters. 5,382. February 25.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of adsorbents. 5,383. February 25.

I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of anthraquinone derivatives. 5,421. February 25.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of active silica. 5,497. February 26.

I. G. Farbenindustrie Akt.-Ges. Manufacture of organic compounds from oils and other bitumens. 5,498. February 26. (Germany, March 19, 1925.)

Imray, O. Y. and Soc. of Chemical Industry in Basle. Manufacture of chromium compounds of azo-dyestuffs. 5,089. February 22.

Jahl, A. Production of barium sulphate from barium sulphide. 5,422. February 25. (Germany, November 5, 1925.)

Mackay, P. A. Manufacture of titanium salts. 5,532. February 26.

Marschalk, H. Process for reducing vat dye-stuffs into their leuco derivatives. 5,522. February 26.

Petroleum Chemical Corporation. Preparation of olefine derivatives. 5,268. February 24. (United States, February 24, 1925.)

Silberrad, O. Manufacture of aldol, crotonaldehyde, etc., from acetaldehyde. 5,309. February 24.

Soc. of Chemical Industry in Basle. Manufacture of vat dyestuff. 5,543. February 26. (Switzerland, March 10, 1925.)

Verein für Chemische und Metallurgische Produktion. Manufacture of hydrochloric acid. 5,386. February 25. (Czecho-Slovakia, March 9, 1925.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. d/d; Contract, £8 10s. d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORATE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d, carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 64 O.P.—Industrial, 2s. 5d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—3d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4¾d. to 5¼d. per lb. Crude 60's, 1s. 4d. to 1s. 6d.

ACID CRESYLIC 97/99.—1s. 7d. to 1s. 9½d. per gall. Pale, 95%, 1s. 5d. to 1s. 7d. per gall. Dark, 1s. 3d. to 1s. 4d. per gall. Good demand.

ANTHRACENE.—A quality, 3d. to 4d. per unit.

ANTHRACENE OIL, STRAINED.—7d. to 8d. per gall. Unstrained, 6½d. to 7½d. per gall.

BENZOL.—Crude 65's, 1s. 2½d. to 1s. 3½d. per gall., ex works in tank wagons. Standard Motor, 1s. 9d. to 1s. 11d. per gall., ex works in tank wagons. Pure, 1s. 10d. to 2s. 4d. per gall., ex works in tank wagons.

TOLUOL.—90%, 1s. 9½d. to 2s. per gall. Pure, 2s. to 2s. 2d. per gall.

XYLOL.—2s. to 2s. 6d. per gall. Pure, 3s. 3d. per gall.

CREOSOTE.—Cresylic, 20/24%, 8½d. to 10d. per gall. Standard specification, middle oil, heavy, 6½d. to 7d. per gall.

NAPHTHA.—Crude, 9d. to 1s. per gall. Solvent 90/160, 1s. 5d. to 1s. 8d. per gall. Steady demand. Solvent 90/190, 1s. to 1s. 3d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £3 10s. to £5 10s. per ton. Whizzed or hot pressed, £5 10s. to £7 10s.

NAPHTHALENE.—Crystals and Flaked, £11 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 75s. to 80s. per ton, according to district. Lower prices on West Coast. Market active.

PYRIDINE.—90/140, 17s. 9d. to 21s. per gall. Firmer. Heavy, 9s. to 10s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated.

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—7s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7d. per lb. naked at works.

ANILINE SALTS.—7d. to 7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 1d. per lb. Good home inquiry.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

o-CRESOL 29/31° C.—3d. per lb. Demand quiet.

m-CRESOL 98/100%.—2s. 1d. to 2s. 3d. per lb. Demand moderate.

p-CRESOL 32/34° C.—2s. 1d. to 2s. 3d. per lb. Demand moderate.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. to 2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLANILINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d. Fair home inquiry.

B-NAPHTHOL.—11d. to 1s. per lb. d/d. Fair home inquiry.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d. Fair home inquiry.

B-NAPHTHYLAMINE.—3s. 9d. per lb. d/d. Fair home inquiry.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. 6d. per lb. d/d.

p-NITRANILINE.—1s. 9d. to 1s. 10d. per lb. d/d. Fair home inquiry.

NITROBENZENE.—5d. to 5¼d. per lb. naked at works. Fair home inquiry.

NITRONAPHTHALENE.—10d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8 15s. to £9. Firmer. Grey, £17 10s. per ton. Better inquiry. Liquor, 9d. per gall. 32° Tw.

ACETONE.—£81 per ton.

CHARCOAL.—£7 5s. to £9 per ton, according to grade and locality. Demand good.

IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall., 24° Tw.

RED LIQUOR.—9½d. to 1s. per gall.

WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 10d. per gall. 60% O.P. Solvent, 4s. 6d. per gall. 40% O.P. Very quiet.

WOOD TAR.—£3 to £5 per ton, according to grade.

BROWN SUGAR OF LEAD.—£40 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£50 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—5s. 3d. per lb.

ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, 80% B.P.—£38 10s. to £39 per ton ex wharf London in glass containers.
ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 6d. per lb. Keen competition met. Good demand.
ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.
ACID, BORIC B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 3d. to 1s. 4d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—5s. 3d. per lb. Resublimed, 7s.
ACID, SALICYLIC.—1s. 3d. to 1s. 5d. per lb. Technical.—10¼d. to 10¾d. per lb.
ACID, TANNIC B.P.—2s. 10d. per lb.
ACID, TARTARIC.—1s. 0¼d. per lb., less 5%. Market firm.
AMIDOL.—6s. 6d. per lb., d/d.
ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—12s. 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.
ATROPINE SULPHATE.—11s. per oz. for English make.
BARBITONE.—10s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—15s. 6d. to 17s. 6d. per lb.
BISMUTH CITRATE.—12s. 9d. to 14s. 9d. per lb.
BISMUTH SALICYLATE.—12s. 6d. to 14s. 6d. per lb.
BISMUTH SUBNITRATE.—13s. to 15s. per lb. according to quantity.
BORAX B.P.—Crystal, £27; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 9d. to 1s. 11d. per lb.; sodium, 1s. 10d. to 2s. 2d. per lb.; ammonium, 2s. 3d. to 2s. 5d. per lb., all spot.
CALCIUM LACTATE.—1s. 3½d. to 1s. 4½d. Market firmer.
CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
FORMALDEHYDE.—£40 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—7s. per lb.
HEXAMINE.—2s. 4d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.
HYDROQUINONE.—4s. 8d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE B.P.—2s. to 2s. 3d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 1d. to 2s. 4d. per lb.
MAGNESIUM CARBONATE.—Light Commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%, price reduced; Heavy Commercial, £23 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.
MENTHOL.—A.B.R. recrystallised B.P., 24s. net per lb., Synthetic, 15s. to 17s. 6d. per lb., according to quality. English make.
MERCURIALS.—Red oxide, 5s. 5d. to 5s. 7d. per lb.; Corrosive sublimate, 3s. 9d. to 3s. 11d. per lb.; white precipitate, 4s. 6d. to 4s. 8d. per lb.; Calomel, 4s. to 4s. 2d. per lb.
METHYL SALICYLATE.—1s. 7d. per lb.
METHYL SULPHONAL.—16s. 6d. per lb.
METOL.—9s. per lb. British make.
PARAFORMALDEHYDE.—1s. 11d. for 100% powder.
PARALDEHYDE.—1s. 3d. to 1s. 4d. per lb.
PHENACETIN.—4s. to 4s. 3d. per lb.
PHENAZONE.—6s. to 6s. 3d. per lb.
PHENOLPHTHALEIN.—4s. to 4s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—80s. per cwt., less 2½% for ton lots. Market very firm.
POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb. in cwt. lots. Quiet.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—7½d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 7½d. per lb., spot, slightly easier.
QUININE SULPHATE.—2s. 3d. to 2s. 4d. per oz., in 100 oz. tins. Steady market.
RESORCIN.—3s. 9d. per lb. In fair quantities.
SACCHARIN.—55s. per lb. Fair inquiry.
SALOL.—3s. per lb.
SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923. 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb. carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£14 to £15 per ton, according to quantity, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—75s. to 80s. per cwt., according to quantity.
SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. per lb. Crystal, 1s. 11d. to 2s. 1d. per lb. Very heavy demand.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.
SULPHONAL.—11s. 6d. per lb. Limited demand.
TARTAR EMETIC, B.P.—Crystal or Powder, 1s. 8d. to 1s. 9d. per lb.
THYMOL.—12s. to 13s. 9d. per lb. Strong demand.

Perfumery Chemicals

ACETOPHENONE.—9s. per lb.
AUBEPINE (EX ANETHOL).—9s. 6d. per lb.
AMYL ACETATE.—3s. per lb.
AMYL BUTYRATE.—6s. 6d. per lb.
AMYL SALICYLATE.—3s. 3d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 3d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 3d. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 9d. per lb.
BENZYL BENZOATE.—2s. 9d. per lb.
CINNAMIC ALDEHYDE NATURAL.—17s. 6d. per lb.
COUMARIN.—11s. 9d. per lb.
CITRONELLOL.—15s. per lb.
CITRAL.—9s. per lb.
ETHYL CINNAMATE.—9s. per lb.
ETHYL PHTHALATE.—3s. per lb.
EUGENOL.—9s. 6d. per lb.
GERANIOL (PALMAROSA).—21s. per lb.
GERANIOL.—7s. to 16s. per lb.
HELIOTROPINE.—6s. per lb.
ISO EUGENOL.—14s. 6d. per lb.
LINALOL EX BOIS DE ROSE.—17s. 3d. per lb.
LINALYL ACETATE.—17s. 3d. per lb.
METHYL ANTHRANILATE.—9s. 3d. per lb.
METHYL BENZOATE.—5s. per lb.
MUSK KETONE.—30s. per lb.
MUSK XYLOL.—5s. 6d. per lb.
NEROLIN.—4s. per lb.
PHENYL ETHYL ACETATE.—12s. per lb.
PHENYL ETHYL ALCOHOL.—9s. 6d. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 4d. per lb.
TERPINEOL.—1s. 8d. per lb.
VANILLIN.—21s. 6d. to 23s. 3d. per lb. Good demand.

Essential Oils

ALMOND OIL.—12s. 6d. per lb.
ANISE OIL.—3s. 6d. per lb.
BERGAMOT OIL.—31s. per lb.
BOURBON GERANIUM OIL.—11s. 9d. per lb.
CAMPHOR OIL.—60s. per cwt
CANANGA OIL, JAVA.—16s. per lb.
CINNAMON OIL, LEAF.—5d. per oz.
CASSIA OIL, 80/85%.—10s. per lb.
CITRONELLA OIL.—Java, 85/90%, 3s. 4d. Ceylon, 2s. 4d. per lb.
CLOVE OIL.—7s. 2d. per lb.
EUCALYPTUS OIL, 70/75%.—1s. 10d. per lb.
LAVENDER OIL.—French 38/40%, Esters, 22s. 6d. per lb.
LEMON OIL.—12s. 6d. per lb.
LEMONGRASS OIL.—4s. 9d. per lb.
ORANGE OIL, SWEET.—13s. per lb.
OTTO OF ROSE OIL.—Bulgarian, 65s. per oz. Anatolian, 35s. per oz.
PALMA ROSA OIL.—12s. 3d. per lb.
PEPPERMINT OIL.—Wayne County, 120s. per lb. Japanese, 13s. 6d. per lb.
PETITGRAIN OIL.—9s. per lb.
SANDAL WOOD OIL.—Mysore, 26s. per lb. Australian, 18s. 6d. per lb.

Russia's Heavy Chemical Production

ACCORDING to recent reports, K. I. Anuphrieff, director of the Russian Chemical Industries Council, says that the production programme for heavy chemicals in the first quarter of the economic year was not fulfilled. Of the respective chemicals scheduled to be produced, the output of muriatic acid made 98 per cent.; sulphate of soda, 95 per cent.; calcined soda, 92 per cent.; caustic soda and superphosphate, 90 per cent.; bleaching powder, 80 per cent.; chrome salts, 50 per cent.; sulphate of copper, 30 per cent.; and acetic acid, 24 per cent. The estimated quantity of sulphuric acid was exceeded by 4 per cent. Nitric acid was produced to schedule, sulphate of soda by 5 per cent., and sulphate of alumina by 1 per cent. The leading cause for the failure to execute the whole programme was the reduced credits for capital repairs, etc. The production programme of the heavy chemicals industry in the current year was based on the necessary repairs being effected in the respective factories and the restoration of equipment. There was also a shortage of raw material, particularly towards the end, and a lack of qualified hands.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, March 5, 1926.

LITTLE change can be reported in the chemical market this week; the demand is still fairly well maintained although business on the whole is still for relatively small quantities. Prices are pretty steady, with an advance in one or two directions. Export trade continues uninteresting.

General Chemicals

ACETONE is rather short for spot and price is extremely firm at £81 to £83 per ton.

ACID ACETIC is only moderately active without change in value.

ACID FORMIC price is very firm at convention figures and is quoted at £50 to £51 per ton according to quantity and position.

ACID LACTIC is unchanged at £43 to £43 10s. per ton for 50% by weight, with a good demand.

ACID OXALIC.—The manufacturers' prices are well maintained at the advanced figure, but there are still one or two resale parcels on the market, which are gradually being absorbed.

ACID TARTARIC is quoted at about 11¼d. per lb., and is quiet and uninteresting.

ALUMINA SULPHATE is unchanged and in good demand at £5 15s. per ton for 17/18%.

AMMONIUM CHLORIDE.—The decline in price appears to have been arrested somewhat, but only a small business is being done at about £18 per ton.

ARSENIC.—There is a better tendency and the price is a turn firmer at about £14 per ton.

BARIUM CHLORIDE continues scarce and firm at £10 10s. per ton.

BLEACHING POWDER unchanged at £8 10s. per ton for contracts.

CREAM OF TARTAR is very steady and inclined to advance at £76 to £77 per ton.

EPSOM SALTS are steady at £5 15s. per ton.

FORMALDEHYDE.—Only a small trade to report with price unchanged at £41 to £42 per ton.

LEAD ACETATE is firm at £44 per ton for white and £42 15s. per ton for brown.

LIME ACETATE is unchanged.

LITHOPONE is fairly steady at from £19 10s. to £20 per ton.

METHYL ALCOHOL is lifeless and price nominally unchanged at £47 to £48 per ton.

METHYL ACETONE continues scarce and extremely firm at £59 to £60 per ton.

POTASSIUM CARBONATE has advanced in price and is about £26 10s. for 96/98%.

POTASSIUM CAUSTIC is also firmer and is quoted at £29 per ton for 88/92%.

POTASSIUM PERMANGANATE.—A fair business is reported at 7½d. to 8d. per lb.

POTASSIUM PRUSSIATE.—There has been a somewhat better demand and the quotation is from 7¼d. to 7½d. per lb.

SODIUM ACETATE is firm and scarce at £21 per ton.

SODIUM BICHROMATE is unchanged at British makers' figures.

SODIUM CHLORATE continues firm at 3¼d. per lb.

SODIUM NITRITE is unchanged but with only a small demand at £21 15s. per ton.

SODIUM PHOSPHATE is fairly active and is unchanged in value at £14 per ton.

SODIUM PRUSSIATE is quiet and unchanged at 4¼d. per lb.

SODIUM SULPHIDE is unchanged.

ZINC SULPHATE.—Only a moderate demand is reported at £13 10s. per ton.

Coal Tar Products

The tone of the market in coal tar products remains steady.

90% BENZOL is firm at 1s. 9d. per gallon on rails, and the motor quality is being quoted at the same price.

PURE BENZOL is unchanged at 2s. 1d. to 2s. 2d. per gallon on rails.

CREOSOTE OIL has a firm market, the price remaining unchanged at 6d. to 6¼d. per gallon on rails in the North, while the price in London is 7d. to 7¼d. per gallon.

CRESYLIC ACID is somewhat dull, and is quoted at 1s. 10d. to 2s. per gallon on rails for the pale quality 97/99% for export, while the dark quality 95/97% is quoted at about 1s. 8d. to 1s. 9d. per gallon on rails. Pale cresylic acid for the home trade is slightly weaker, and is worth about 1s. 6d. per gallon on rails. while the dark quality is quoted at 1s. 4d. per gallon on rails.

SOLVENT NAPHTHA is firm at 1s. 5d. per gallon on rails.

HEAVY NAPHTHA is steady at 1s. 1d to 1s. 2d. per gallon on rails.

NAPHTHALENES are quiet, the lower grades being worth from £4 to £4 10s. per ton, 76/78 quality about £6 per ton, and 74/76 quality about £5 10s. per ton.

PITCH remains in very strong demand and prices are advancing rapidly. To-day's values are approximately 75s. to 80s. per ton, f.o.b.

Latest Oil Prices

LONDON.—LINSEED OIL dull and 5s. down. Spot, £31 10s., ex mill; March and April, £29 10s.; May-August, £29 12s. 6d.; September-December, £29 15s. RAPE OIL quiet. Crude crushed, spot, £47 10s.; technical refined, £50. COTTON OIL quiet. Refined common edible, £42. Egyptian crude, £35; deodorised, £44. TURPENTINE steady and occasionally 3d. per cwt. advance. American spot, 63s. 6d.; April, 64s.; May-June, 62s. 6d.; July-December, 59s. 3d.

HULL.—LINSEED OIL.—Spot to May-August, £29 15s.; September-December, £30. COTTON OIL.—Bombay crude, £34; Egyptian crude, £34 10s.; edible refined, £38 10s.; technical, £38. PALM KERNEL OIL.—Crushed naked, 5⅛ per cent., £43. GROUNDNUT OIL.—Crushed/extracted, £43; deodorised, £47. SOYA OIL.—Extracted and crushed, £37; deodorised, £40 10s. RAPE OIL.—Extracted and crushed, £47 per ton, net, cash terms, ex mills. CASTOR OIL and COD OIL unchanged.

Nitrogen Products Market

Export.—During the last week the demand for sulphate of ammonia has been steady. The nearer approach of the consuming season has resulted in a small increase in price and British producers are now quoting £12 10s. per ton f.o.b. in single bags for prompt shipment. The Far East continues to show interest and the Continental demand is more lively.

Home.—End February witnessed enormous activity by the merchants dealing in fertilisers in numerous parts of the country. The large orders reported were partly in anticipation of requirements as the price was raised 3s. per ton for March/May delivery. The sunny weather also had a stimulating effect and producers are now hard put to it to deliver quantities sold for prompt delivery.

Nitrate of Soda.—The nitrate market continues quiet. Cargoes c.i.f. chief European ports are still changing hands on the basis of £11 11s. per ton. Stocks are being reduced in several countries and there seems little indication of any drastic change in prices.

U.S. Chemical Imports Increase in 1925

IMPORTS of chemicals and allied products rose 12 per cent. from an aggregate value of $183,558,000 in 1924 to $206,000,000 in 1925, according to the Chemical Division of the U.S. Department of Commerce.

Industrial chemicals, which group showed an increase of 23 per cent. over 1924, amounted to 11 per cent. of the total chemical imports, with an aggregate value of $22,407,000 in 1925. The gain may be attributable to a larger demand for glycerin, crude potassium bitartrate, potassium chlorate and perchlorate, sodium cyanide, and crude iodine. Fertilisers, etc., accounted for 38 per cent. of the total chemical imports, advanced 17 per cent. from 1,893,000 tons in 1924 to 2,268,500 tons in 1925. Over two-thirds of the group in 1925 was comprised of sodium nitrate, imports of which amounted to $52,531,000 (1,112,200 tons). Receipts of calcium cyanamide likewise showed a decided improvement at $4,689,000 (99,000 tons). Three times as much ammonium sulphate also was purchased from foreign countries in 1925 as in 1924 or $1,326,000 (23,800 tons).

The coal-tar products group, valued at $20,656,900, gave 10 per cent. of the total—a 3 per cent. improvement—and over one-third of the group was dyes, colours, and stains. Out of a total importation of $7,162,700 (5,782,300 pounds), $3,757,800 (2,932,200 pounds) came from Germany and $2,260,200 (1,970,950 pounds) from Switzerland.

Chemical Tenders Accepted

THE following tenders have recently been accepted:—Soap, 1¼ tons, in tablets, for Stepney B.C., J. Watson and Sons, Leeds, 43s. 6d. per cwt. Tar, 50,000 galls. for Willesden U.D.C., Gas Light and Coke Co., 6½d. per gall.; refined tar for Oakworth U.D.C., Brookes, Ltd., Halifax, 6½d. per gall. Pulp drying plant for beet sugar for Peterborough, J. Rolland and Co., London.

Birmingham Board of Guardians report the acceptance of soap contracts at the following prices: Soft, 13s. firkin, compared with 9s. 2½d. on January 12; yellow, per cwt., 36s. 6d., against 36s. on January 26; carbolic, per cwt., 36s. 4½d., against 36s. 6d. on January 12.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

GLASGOW, *March* 5, 1926.

BUSINESS in the Heavy Chemical market has been rather quieter than during the preceding weeks, but there has been a moderate amount of business placed. Prices show no material change since last reported.

Industrial Chemicals

ACID ACETIC, 98/100%.—Quoted £55 to £67 per ton, according to quantity and packing, c.i.f. U.K. port; 80% pure, £40 to £41 per ton; 80% technical, £38 to £39 per ton, packed in casks, c.i.f. U.K. ports.

ACID BORIC.—Crystal, granulated, or small flakes, £37 per ton; powdered, £39 per ton, packed in bags, carriage paid, U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In moderate demand and price unchanged at about 5½d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Usual steady demand and price unchanged at about 1s. 3¾d. per lb., less 5% ex wharf.

ACID FORMIC, 85%.—Spot material quoted about £49 15s. per ton, ex store. Offered from the Continent at about £49 per ton, ex wharf, prompt shipment.

ACID HYDROCHLORIC.—In little demand; price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80°.—Remains unchanged at £23·5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Spot material quoted 3¾d. per lb., ex store. Quoted 3¾d. per lb., ex wharf, to come forward.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 11½d. per lb., less 5% ex wharf, but this price could probably be shaded.

ALUMINA SULPHATE, 17/18% IRON FREE.—On offer from the Continent at about £5 10s. per ton, c.i.f. U.K. ports. Spot material available at £6 5s. per ton, ex store.

ALUM, LUMP POTASH.—Quoted £7 15s. per ton, c.i.f. U.K. ports, prompt shipment. Spot material available at about £9 2s. 6d. per ton, ex store; powdered quality on offer from the Continent at about £7 10s. per ton, c.i.f. U.K. ports.

AMMONIA ANHYDROUS.—Continental material on offer at about 1s. 2d. per lb., ex station, containers extra and returnable. This price can be shaded for large quantities.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton; packed in 5-cwt. casks, delivered or f.o.b. U.K. ports. Industrial quality about £10 per ton less.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £26 to £27 per ton, ex station. On offer from the Continent at about £22 10s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £18 15s. per ton, c.i.f. U.K. ports, prompt shipment from the Continent.

ARSENIC.—In rather poor demand, but prices remain unchanged. Spot material quoted £17 per ton, ex store. Offered for prompt shipment from works at £16 10s. per ton, ex wharf.

BARIUM CHLORIDE, 98/100%.—White crystals on offer from the Continent at about £8 12s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—English material quoted £9 10s. per ton, ex station. Contracts 20s. per ton less. On offer from the Continent at about £7 15s. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton; crystals, £23 per ton; powdered, £24 per ton, carriage paid, U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, carriage paid, U.K. stations. Continental on offer at about £4 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Quoted £3 17s. 6d. per ton, f.o.b. U.K. ports for export. About £3 10s. per ton, f.o.r. works for home consumption.

COPPER SULPHATE, 99/100%.—Price for British material £23 10s. per ton, f.o.b. U.K. ports. Moderate inquiry for export. Continental on offer at about £22 per ton, ex wharf.

FORMALDEHYDE, 40%.—Spot material available at about £39 per ton, ex store. Quoted £38 per ton, c.i.f. U.K. ports to come forward.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental on offer at about £3 per ton, c.i.f. U.K. ports.

LEAD, RED.—Price for imported material reduced to about £40 10s. per ton, ex store. Quoted £39 15s. per ton, c.i.f. U.K. ports to come forward.

LEAD, WHITE.—On offer at £40 15s. per ton, ex store, spot delivery.

LEAD ACETATE.—White crystals on offer from the Continent at about £42 10s. per ton, c.i.f. U.K. ports. Brown quoted about £38 5s. per ton, c.i.f. U.K. ports. Spot material available at about £44 per ton, ex store.

MAGNESITE, GROUND CALCINED.—In moderate demand and price unchanged at about £8 15s. per ton, ex station.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f. U.K. ports, according to quantity and destination. Spot material available at about £29 per ton, ex store.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE.—96/98% quality, quoted £25 10s. per ton, ex wharf, early delivery; spot material available at about £26 10s. per ton, ex store; 90/92% quality, quoted £22 10s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99/100%.—Crystals quoted £31 15s. per ton, ex wharf. Powdered quoted at about £30 per ton, c.i.f. U.K. ports.

POTASSIUM NITRATE, SALTPETRE.—Quoted £22 15s. per ton, c.i.f. U.K. ports, prompt shipment. Spot material available at about £25 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Spot material quoted 8d. per lb., ex store. Offered for early delivery at 7½d. per lb., ex wharf.

POTASSIUM PRUSSIATE, YELLOW.—Quoted 7¼d. per lb. ex store spot delivery. On offer from the Continent at about 7¼d. per lb. c.i.f. U.K. ports.

SODA CAUSTIC.—76/77%, £17 10s. per ton; 70/72%, £16 2s. 6d. per ton; broken 60%, £16 12s. 6d. per ton; powdered 98/99%, £20 17s. 6d. per ton; all carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—Offered from the Continent at about £20 per ton c.i.f. U.K. ports. Spot material scarce.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton ex quay or station; M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb. delivered.

SODIUM CARBONATE, SODA CRYSTALS.—£5 to £5 5s. per ton ex quay or station; powdered or pea quality, £1 7s. 6d. per ton more; alkali 58%, £8 12s. 3d. per ton ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 per ton ex station. Minimum 4-ton lots. Pea crystals, £14 5s., per ton ex station. Continental commercial quality offered £9 per ton ex store.

SODIUM NITRATE.—Quoted £13 per ton, ex store. 96/98% Refined quality, 7s. 6d. per ton extra.

SODIUM NITRITE 100%.—Quoted £24 per ton ex store. Offered from the Continent at about £22 5s. per ton c.i.f. U.K. ports.

SODIUM PRUSSIATE, YELLOW.—In steady demand and spot material now quoted about 4¼d. per lb. ex store. Offered for prompt shipment from the Continent at about 4d. per lb. c.i.f. U.K. port.

SODIUM SULPHATE SALTCAKE.—Price for home consumption, £3 10s. per ton ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE.—60/62% solid, £13 5s. per ton; broken, £14 5s. per ton; flake, £15 5s. per ton; crystals, 31/34%, £8 12s. 6d. per ton; all delivered buyers' works U.K. minimum 5-ton lots with slight reduction for contracts. 60/62% solid quality offered from the Continent at about £10 10s. per ton c.i.f. U.K. ports; broken, £1 per ton more; crystals, 30/32%, £7 10s. per ton c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 per ton; Roll, £9 15s. per ton; Rock, £9 15s. per ton; Ground, £9 10s. per ton, ex store, spot delivery. Prices nominal.

ZINC CHLORIDE.—British material 95/98% quoted about £24 per ton f.o.b. U.K. ports; 98/100% solid on offer from the Continent at about £22 10s. per ton c.i.f. U.K. ports. Powdered about 20s. per ton extra.

ZINC SULPHATE.—Continental manufacture on offer at about £11 per ton ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

Coal Tar Intermediates and Wood Distillation Products

BENZALDEHYDE.—2s. 2d. per lb. Some home inquiries.

NAPHTHIONATE OF SODA.—1s. 8d. per 100% per lb. Good home inquiries.

BETA NAPHTHOL.—11d. to 1s. per lb. Fair home inquiries.

METANITRANILINE.—3s. 2d. per 100% per lb. Some home inquiries.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, March 5, 1926.

Business on the Manchester chemical market remains very strongly under the influence of the conditions of the big consuming industries, particularly the textile industries. Here the present position is anything but satisfactory, particularly in the American section of the cotton trade, and a further meeting of the Short Time Committee has been called for this week to reconsider matters. The actual volume of business in chemicals done here this week has been of limited extent, and hand-to-mouth buying seems to be the general plan adopted by most of the industrial users. The demand for export is still on a restricted scale. Values are steady, however, in nearly all cases, though here and there one hears still of instances of forced realisations.

Heavy Chemicals

Caustic soda is maintained at from £15 2s. 6d. per ton for 60 per cent. strength to £17 10s. for 76–77 per cent., demand being quietly steady. Inquiry for bicarbonate of soda is only moderate, but the quotation of £10 10s. per ton is repeated. Acetate of soda is now offered at £20 to £21 per ton, although business is rather quiet. Phosphate of soda is steady and in fair request at £12 15s. to £13 per ton. Alkali is well held at £6 15s. per ton, and a fair amount of business is being put through. Sulphide of sodium is still rather quiet, but values are steady at £9 12s. 6d. per ton for crystals, and £11 10s. to £12 per ton for 60–65 per cent. concentrated solid. Hyposulphite of soda is a slow section, but rates show little change, commercial material being quoted at round £9 10s. per ton, and photographic quality at £14 5s. There is not much doing in saltcake, which continues at about £3 per ton, while glauber salts are also quiet at round £3 5s. Prussiate of soda maintains its recent firmness at about 4¼d. per lb. Chlorate of soda is in limited request, but rates are steady at round 3¼d. per lb. Soda crystals are quoted at £5 5s. per ton, and show no change in price. Bleaching powder is in quiet demand at round £8 10s. per ton. Bichromate of soda keeps fairly steady at about 3¼d. per lb., but demand is rather slow at the present time.

Although the volume of inquiry for caustic potash is only moderate, quotations keep up at about £27 10s. per ton for 90 per cent. strength. Carbonate of potash is firm and in fair request at £26 to £26 10s. per ton for the 96 per cent. material. Yellow prussiate of potash is rather slow, as it has been for some time; prices, however, are steady at about 7¼d. per lb. The demand for permanganate of potash continues dull at about 5½d. per lb. for commercial quality, and 7¼d. for B.P. Chlorate of potash is attracting relatively little attention, but quotations are maintained at 4d. per lb. Bichromate of potash is rather quiet, although unchanged in value at round 4¼d. per lb.

There is still only a small demand for sulphate of copper, which continues to be quoted at £24 5s. per ton. Arsenic is still being called for in limited quantities at round £14 per ton, f.o.r., for white powdered, Cornish makes. Commercial epsom salts are quiet but fairly steady at £3 10s. to £3 15s. per ton; magnesium sulphate, B.P. quality, offering at round £4 10s. per ton. Nitrate of lead is slow, but values remain about unchanged at £40 to £41 per ton. White acetate of lead is in limited demand, but steady at £44, with brown offering at £39 to £40 per ton. Grey acetate of lime is well maintained at about £17 10s. per ton, and brown at £8 5s. to £8 10s.

Acids and Tar Products

In the acid section oxalic is meeting with slightly more inquiry, and prices are firmer, round 4d. per lb. now being asked for this material. Tartaric acid seems still to be rather quiet at about 11½d. per lb. Citric acid is steady at 1s. 3¼d. to 1s. 3½d. per lb., but the demand is limited at the moment. Acetic acid is in fair request at £37 per ton for 80 per cent. commercial and £67 for glacial.

Among the coal-tar products carbolic acid is dull but nominally steady at 5d. per lb. for crystal and 1s. 5d. per gallon for crude. Pitch keeps fairly active and very firm in price at about 68s. per ton, f.a.s. Manchester. Solvent naphtha is moderately active and steady at 1s. 6d. per gallon. Creosote oil is in quiet demand at round 6½d. per gallon.

A New List of A.R. Standards

The B.D.H. Book of A.R. Standards (Pp. 111. 2s. 6d.) "has been prepared," as stated in the preface, "for the purpose of defining as exactly as possible the commercially attainable standards for purity of chemicals for those scientific purposes in which purity is of great importance. It is the object of this book to provide a definition of the purity of chemicals described as "'A.R.' and sold under the B.D.H. label, and thus to give a definite meaning to the term 'A.R.'" The book is based on the "List of Reagents for Analytical Purposes" drawn up in 1914 by the Institute of Chemistry and the Society of Public Analysts. But whereas the latter list contained 88 reagents, the present one contains 158. Moreover, ten years of experience has enabled the present publishers to alter some of the old tests in the direction of greater stringency.

In addition to the ordinary reagents, the book gives specifications for many more unusual substances, including a number of organic products, such as acetone, acetyl chloride and bromide, animoacetic acid, amyl alcohol, carbon tetrachloride, chloroform, dextrose, ether, α- and β-naphthol, etc., etc. The publishers are to be congratulated on their decision to standardise their products, for from the buyer's point of view the importance of standards cannot be over-estimated. The lack of them, and the consequent robbery of the public, has recently been the subject of strong comment in regard to the sale of food, and it is satisfactory to know that in regard to these chemicals, at any rate, the public will, in the words of the Food Commission, "get what it asks for and what it pays for."

All the specifications are brief and to the point, and the book is of handy size and well produced. In the next impression a few blank pages for notes might be added. The book is of great interest to all who are interested in pure chemicals for analysis, research, teaching or general scientific purposes.

Calcium Cyanide as a Pesticide

In a statement just made public by the American Chemical Society, Mr. Floyd J. Metzger, vice-president and research director of the Air Reduction Co., states that the production of calcium cyanide has been achieved. Its use will greatly facilitate the war on fruit pests, especially the scale pest of the citrus industry. The use of liquid hydrocyanic acid in the past for similar purposes has been attended by many difficulties and dangers, which are obviated by the use of calcium cyanide (called "powdered hydrocyanic acid," because exposure to the air rapidly and almost quantitatively liberates hydrocyanic acid from it). The dosage of cyanogen required is less in the case of calcium cyanide than in that of hydrocyanic acid, and no "burning" of foliage results from its use. The cyanide is produced as a very fine powder, which can be easily distributed, either by a dust gun or by floor spreading. The product has many advantages over liquid hydrocyanic acid, notably in its safety in handling, transportation, and application. The powder is perfectly stable under all ordinary conditions of storage and transportation, provided only that it be protected from atmospheric contact. On the contrary, liquid hydrocyanic acid is dangerous to handle, and it is difficult and dangerous to transport since it is subject to spontaneous polymerisation which may result in violent explosions.

"Technolite: Better than Marble"

We have received from A. Gallenkamp and Co., Ltd., laboratory fitters, London, a sample of "Technolite," a non-absorbing acid- and alkali-proof material which might at a glance be mistaken for white marble, but which is claimed to be even better than marble for use as laboratory bench or table tops, shelves, etc., for bacteriological work, foodstuff testing, and similar operations. It has a brilliant snow-white fire-polished surface, is said to be as hard as crystal, and can be cut, bent to avoid sharp angles, drilled to take fittings, and edges bevelled and polished. It is cast in sheets up to 10 by 3 ft. in thicknesses from an inch to a quarter inch. The appearance of "Technolite" is decidedly attractive, and suggests cleanliness of a very strict order.

Company News

SHAWINIGAN WATER AND POWER.—The profits for the year 1925 were $2,366,338.

JOHN OAKEY AND SONS.—A final dividend of 8½ per cent. is proposed, making 11 per cent. for the past year against 10 per cent. for 1924.

VEREINIGTE GLANZSTOFF FABRIKEN A.G. OF ELBERFELD.—It is reported that this associated company of Courtaulds will pay a dividend of 15 per cent.

BRITISH DRUG HOUSES, LTD.—Allotment letters in connection with the recent offer for sale of 255,500 ordinary shares, which was largely over-subscribed, were posted on Wednesday, and dealings started at a small premium.

BRITISH METAL CORPORATION, LTD.—The report of the directors for the year ended December 31 last, to be submitted to the shareholders at the annual general meeting on March 10, states that the profit for the year, after payment of all expenses and appropriating £50,000 to reserve account, is £80,182, and £18,265 was brought forward, making a total of £98,447. The directors recommend a dividend of 8 per cent., payable less income tax, leaving a sum of £19,967 to be carried forward.

WAXED-PAPERS, LTD.—For the year ended December 31 last a net profit of £20,521 was secured, and the balance of £3,785 brought in makes an available total of £24,306. After writing off the final balance for preliminary expenses, amounting to £6,777, it is proposed to pay a dividend of 3½ per cent., less tax, on the ordinary shares, carrying forward a balance of £4,630. Trading profit represents an increase of 72½ per cent. over the results of the previous year. For 1924 a dividend of 2½ per cent. was paid.

ELECTRO BLEACH AND BY-PRODUCTS, LTD.—The directors' report for the twelve months ended December 31 last states that the profit, after deducting repairs, standing charges, depreciation, directors' additional remuneration and bonus to employees, and making reserves for taxation, amounts to £39,202, to which must be added £1,781 brought forward from 1924, making a total of £40,983. The directors propose to pay a dividend on the ordinary capital at the rate of 13 per cent., making 20 per cent. for the year, and a dividend on the preference capital at the rate of 6½ per cent., making 10 per cent. for the year. The annual meeting will be held at the Midland Hotel, Manchester, on March 9, at 1 p.m.

Alleged False Description of Sulphur

BEFORE Mr. Justice Horridge at the Surrey Assizes, on Wednesday, Robinson Bros., Ltd., of West Bromwich, were indicted, under the Merchandise Marks Act, for selling goods with a false trade description—namely, as flowers of sulphur what was alleged to be ground sulphur (see THE CHEMICAL AGE, December 19, 1925, and January 9, 1926).

The prosecution alleged that defendants had sold as flowers of sulphur ordinary ground sulphur, which was prepared by the simple process of grinding. Mr. Hedley Miller, assistant secretary of the Chamber of Trade, to whom complaint was made, ordered from the defendants 2 cwt. of their "Fortress" brand of flowers of sulphur. Upon analysis the substance was found to be ground sulphur.

In reply to the Judge, Sir Arthur Colefax (for the defence) said he was there to have it decided whether flowers of sulphur was the proper description of the article manufactured.

William Russell Smith, analytical chemist, of Mincing Lane, London, who analysed the sample, said flowers of sulphur under a microscope should be opaque amorphous globules. He was prepared to say that the sample submitted was 98 per cent. pure sulphur. The British Pharmacopœia, when dealing with flowers of sulphur for drugs, limited the amount of acid it contained, and the sample analysed contained no acid. He was using the term flowers of sulphur as synonymous with flowers of sulphur obtained by sublimation. He had no knowledge of any other process than sublimation for making flowers of sulphur.

Reading from the Pharmaceutical Code, Sir Arthur Colefax said sublimated sulphur or flowers of sulphur might be obtained by grinding sulphur.

Witness disagreed with this statement.

Professor H. G. Greenish, joint editor of the British Pharmacopœia, said he did not agree with the statement of the Pharmaceutical Code that flowers of sulphur could be made by grinding down sulphur. He did not know flowers of sulphur could be obtained by any other method than sublimation.

Sir Arthur Colefax said the substance was not sold under a false trade description. The sulphur was manufactured by Chance and Hunt, Ltd., and they did not make it by mere grinding. After grinding it was winnowed by a stream of gas.

Mr. W. Cowburn (Messrs. Cowburn and Cooper, chemical merchants, Manchester), Sir W. Alexander and Mr. W. J. U. Woolcock gave evidence to the effect that flowers of sulphur could be prepared by other ways than sublimation, and the product had been sold prepared in that way.

The hearing was adjourned.

Tariff Changes

HUNGARY.—A commercial agreement with France has resulted in the following amendments which are applicable to British goods:

Tariff No.	Articles.	Former Duty. Per 100 kilogs gold crowns.	New Duty. Per 100 kilogs gold crowns.
257	Tartaric acid	60*	30
ex 270	Chlorate and perchlorate of potassium	24*	10*
284	Tartrates	60	40
362	Varnish and vegetable oils	25	20
ex 363	Lacs, also liquid or solid caustic colouring substances	60	45
384	Fish glue	30	20
385	Animal glue	25	18
416 (*b*)	Printers' inks	60	40
444	Salicylic acid	150*	75*
445	Acetylsalicylic acid and its salts	250	125
450	Methyl and ethyl bromide	300	125
	Methyl and ethyl chlorides and iodides	300	150
454 (*b*)	Alkaloids, not specially mentioned	15%* *ad valorem*	7%* *ad valorem*
ex 455	Novocaine and similar products	300	175
456	Organic preparations not mentioned in the Tariff	15%*	10%*

**Note.*—In virtue of Decrees, the duties on certain goods covered have been temporarily suspended or reduced, or are payable at certain percentages of the Nominal Tariff rates, as follows:

		Per 100 kilogs.
257	Tartaric acid	25% of the duty.
ex 270	Chlorate and perchlorate of potassium	Free
ex 444	Salicylates not specially mentioned	10% of the duty.
454 (*b*)	Alkaloids not specially mentioned	5% *ad valorem*
ex 456	Butyric, valerianic, succinic and propionic acids, salts of succinic and of phthalic acid, hexamethylenetetramine	Free

LATVIA.—All fertilisers sold must now be submitted to Ministry officials.

VENEZUELA.—Peroxide of hydrogen is now exempt from import duty.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

DRUGS.—An agent in Barcelona wishes to represent British firms manufacturing drugs. (Reference No. 259.)

TAR.—Refined tar (400 barrels) for Leatherhead U.D.C. Tenders to Town Surveyor by March 16.—Bituminous surface dressing, lime, cement and lubricating oils, for Wembley U.D.C. Tender forms from Mr. C. R. W. Chapman, Council offices, returnable by March 17.

COLOURS, OILS, CHINA CLAY, ETC.—An agent in Montreal desires to represent on commission for the whole of Canada, British makers of ultramarine blue, soluble oils, sulphonated castor oil, China Clay, and bone black or animal charcoal. (Reference No. 267.)

OILSEEDS.—An agent in Genoa desires Italian representation of British exporters of all kinds of oilseeds. Correspondence in English. (Reference No. 277.)

The Non-conductivity of a Foam Stream

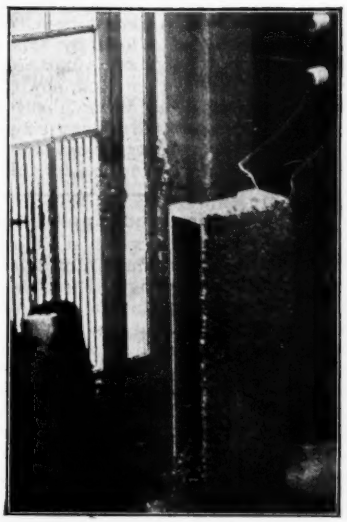
Before the Foamite 1-gallon Extinguisher was brought into operation. Note arc.

AMONG the numerous tests carried out in December last under the auspices of the Office National des Recherches et Inventions, Paris, to determine the best general fire extinguishing medium was that illustrated.

Twin cable, one and a half inches in diameter, was suspended clear from a vertical panel and with the lower ends swinging freely. The voltage was 12,000 at 1.6 amperes, rising to 35 amperes.

Firefoam was the only medium which extinguished the arc and prevented a re-strike, the operator handling the appliance at a distance of five feet without taking any special precautions, such as the wearing of rubber gloves.

At these trials it was again demonstrated that Foamite Firefoam is the surest medium for combating all fires.



After the Fire was extinguished with Firefoam. Note foam clinging to vertical surface.

The Principle underlying the FOAMITE *Method*

FIREFOAM, which is produced by all Foamite apparatus, consists of millions of bubbles charged with carbon dioxide gas. It floats upon liquids and adheres to solids, even to walls and ceilings.

Immediately a burning surface is coated with Firefoam the oxygen of the air is cut off so that further combustion is impossible. No matter whether you have a quantity of inflammable liquid on fire or a number of wooden boxes, the result is just the same. Wherever there is Firefoam there can be no fire.

Firefoam resists the most intense heat, and the draught of the fiercest fire cannot prevent it from reaching the burning surface, where it will remain until long after a reflash is possible.

Firefoam does no damage to liquids or solids upon which it is used.

Reliability is the keynote of FOAMITE *Protection*

THE tremendous hazards of the oil industry first received the attention of the company's engineers, and after lengthy research the foaming agent—Firefoam Liquid—was produced. This proprietary chemical is the heart of the Foamite method, and its special properties made possible a foam of such a quality that the great oil interests immediately realised that those conflagrations, which had previously been so disastrous, could be controlled and extinguished at small cost.

No matter what your risk, suitable Foamite apparatus is available. There are small extinguishers for the private house and installations for the protection of oil tanks and boiler-rooms of oil-burning ships.

Send for a copy of the new illustrated booklet entitled "Extinguishing Oil and Other Fires." It describes the Foamite way to real security from uncontrolled fire.

FOAMITE FIREFOAM LTD., 24-26 MADDOX STREET, LONDON, W.1

Foamite Fire Protection

Please send copy of "Extinguishing Oil and Other Fires."

Name.....

Address .....

....

German Trade Mission to London

More Dyestuff Rumours

As a result of inquiries in London on Thursday, THE CHEMICAL AGE is able to announce that representatives of German dyestuffs companies are now on a visit to this country. As the utmost secrecy appears to attach to the object of the mission it is uncertain whether it is in connection with a prospective issue by the Farbenindustrie Interessen Gemeinschaft, or in order to resume negotiations for an agreement with British dyestuffs interests. As announced in THE CHEMICAL AGE last week, there is reason to believe that an arrangement has almost been completed for the issue in London shortly of a loan by this great German combine, and a sum of £7,000,000 is mentioned as the probable sum required. On the other hand, now that steps have been taken in either country to bring about amalgamations between leading interests, it is not unlikely that some international dyestuffs agreement may be reached, and it is possible that the German visitors are over here for this purpose.

Preparation and Applications of Glucinum

AN article by C. Matignon in *Chimie et Industrie* (January, 1926) foreshadows an important industrial future for glucinum (beryllium). According to Fessenden's rule, the metal should have density 1·8 and modulus of elasticity 30. Magnesium, which with its adjuvants—aluminium, zinc, and copper—is the present basis of very light alloys, has a modulus of elasticity of only 4; and hence the possibilities of replacing it in some degree by glucinum are exciting attention. For some time, unsuccessful efforts were made to work out a method of obtaining the pure metal in quantity. In 1921, the German chemist, Stock, in collaboration with the late Dr. H. Goldschmidt and others, succeeded in solving the problem, but the details of the process have only recently become available. A mixture of the fluorides of glucinum, sodium and barium is electrolysed in a graphite crucible (anode), using a water-cooled iron cathode, at 50 amps. and 80 volts. The heat evolved keeps the contents of the crucible about 70° above the melting point of glucinum (1280°) without external application of heat. A small amount of iron is found in the metal, which is, however, free from sodium and barium. 50 grams of metal may be obtained in nine hours. Owing to its low equivalent weight, glucinum thus prepared will be expensive; but there is every reason for believing that it may play a very important part in the preparation of alloys.

Artificial Silk Developments

AN extraordinary general meeting of British Celanese, Ltd., will be held next Tuesday, in London, to consider resolutions submitted at the instance of the Cellulose Holdings and Investment Co., Ltd., which concern has largely financed the former company. One of the resolutions is for the appointment of a committee of investigation into the affairs of British Celanese, and the other is for the removal of Dr. H. Dreyfus, Dr. C. Dreyfus, Mr. A. Clavel, and Sir A. Trevor Dawson from the board of directors.

At a special meeting of Scottish shareholders in British Celanese, Ltd., held at Glasgow on Tuesday, only two out of the 1,000 shareholders dissented against the resolution to support the board against the resolutions of the Cellulose Holdings Company's resolutions.

Mr. C. W. Palmer, of British Celanese, Ltd., hinted at the production of some entirely new fabrics involving artificial silk when lecturing to the Athenæum Textile Society at Manchester on Tuesday. He was unable to describe them, being bound to secrecy. It was declared in discussion that this very secrecy was keeping trade away.

The preliminary list of exhibitors at the first British artificial silk exhibition to be held at Holland Park from April 19 to 24 include:—British Celanese, Ltd., the British Dyestuffs Corporation, the Bradford Dyers' Association, J. and J. McCullum, Ltd., Bulmer Rayon Co., Western Viscose Silk Mills, and Barrack's Dyeworks, Ltd.

The Dominion National Consolidated Industries, Ltd., will build immediately at Poplar Island, B.C., a $3,000,000 mill, part of which will produce rayon. The enterprise is capitalised by West Canadian and Californian interests.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

BIRMINGHAM CHEMICAL CO., LTD. (M., 6/3/26.) Registered February 19, £3,000 (not ex.) mortgage, to Lloyds Bank, Ltd.; charged on 12 and 14, Bath Row, Birmingham.

GITTINGS AND HILLS, LTD. (late GITTINGS, HILLS AND BOOTHBY, LTD.), Birmingham, paint manufacturers. (M., 6/3/26.) Registered February 22, £3,000 debentures; general charge. *£7,000. December 17, 1925.

Satisfactions

BOAM (JOSEPH), LTD., Leicester, oxide merchants, etc. (M.S., 6/3/26.) Satisfaction registered February 19, all moneys, etc., registered January 18, 1915.

HASSALL AND CO., LTD., London, E., chemical manufacturers. (M.S., 6/3/26.) Satisfaction registered February 17, £1,000, registered August 15, 1924.

TYSON AND BRADLEY, LTD., Chesterfield, chemical manufacturers. (M.S., 6/3/26.) Satisfactions registered February 17, all moneys, etc., registered March 19, 1913, and November 29, 1922.

Receivership

STAR POLISH CO., LTD. (R., 6/3/26.) E. H. Hawkins, of 4, Charterhouse Square, E.C.1, incorporated accountant, was appointed Receiver on February 15, 1926, under powers contained in debenture dated October 6, 1925.

London Gazette, &c.

Partnership Dissolved

PARKINSON (R.) AND SONS (Isaiah PARKINSON and Stephen Herbert PARKINSON), wholesale druggists, at Curzon Street, Burnley, by mutual consent as from January 4, 1926. Debts received and paid by H. Parkinson, who continues the business.

New Companies Registered

HERCULEUM, LTD.—Registered February 24, 1926. Manufacturers of synthetic resin, etc. Nominal capital, £12,000 in £1 shares. Solicitor: H. T. Sales, 44, Kennedy Street, Manchester.

LEES AND SANDERS, LTD., Warstone Smelting Works, Warstone Lane, Birmingham.—Registered February 19, 1926. Bullion dealers, refiners of gold, silver, platinum and other precious metals; assayers, refiners and analytical and metallurgical chemists. Nominal capital, £100,000 in £1 shares.

PETER LUNT AND CO., LTD.—Registered February 24, 1926. Soap manufacturers, candle makers; manufacturers of and dealers in water softeners, starch, soda, and other laundry materials; drysalters, oil and colourmen, etc. Nominal capital, £70,000 in £1 shares (15,000 7 per cent. cumulative preference with priority as to capital, and 55,000 ordinary). Solicitors: Syers Dixon and Barrell, 8, Harrington Street, Liverpool.

G. F. RAYNER AND CO., LTD.—Registered February 22, 1926. Manufacturers of and dealers in margarine, fats; oil extractors and refiners; manufacturers of artificial manures and fertilisers. Nominal capital, £1,000 in £1 shares. Solicitors: Woodham, Smith and Borradaile, 5, Chancery Lane, London, W.C.2.

WORKINGTON BOILER FLUID CO., LTD., Commercial Buildings, 59, Station Road, Workington, Cumberland.—Registered February 26, 1926. Boiler fluid manufacturers; acid, chemical and by-product manufacturers, etc., Nominal capital, £1,002 in £1 shares.